

# FLIGHT

## The AIRCRAFT ENGINEER AND AIRSHIPS

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### CONTENTS

|   | PAGE |
|---|------|
| Editorial Comment :                     |      |
| Imperial Airways .. .. .                | 1079 |
| Short "Calcutta" .. .. .                | 1081 |
| Westland "Wessex" .. .. .               | 1082 |
| Private Flying and Club News .. .. .    | 1088 |
| Business and the Air .. .. .            | 1090 |
| A Flight in the Short "Valetta" .. .. . | 1092 |
| Airisms from the Four Winds .. .. .     | 1094 |
| Croydon Notes .. .. .                   | 1095 |
| Correspondence .. .. .                  | 1095 |
| Air Transport .. .. .                   | 1096 |
| Two American Mail 'Planes .. .. .       | 1097 |
| Imperial Airways, Ltd. .. .. .          | 1098 |
| Gliding .. .. .                         | 1099 |
| Taking Notice of the I.T.C. .. .. .     | 1101 |
| Caudron C. 232 .. .. .                  | 1102 |
| Royal Air Force .. .. .                 | 1103 |
| Models .. .. .                          | 1104 |

### DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list—

1930

- Oct. 4 .. Surrey Ae.C. Meeting, Gatwick Aerodrome.
- Oct. 9 .. Lecture, "The Growth of Aviation," by C. R. Fairey, before R.Ae.S.
- Oct. 21 .. Society of Engineers' Dinner to Miss Amy Johnson, at Holborn Restaurant.
- Oct. 23 .. Lecture, "Air Transport in Fog," by F. W. Meredith, before R.Ae.S.
- Nov. 13 .. Lecture, "Testing the Control of Aeroplanes," by H. L. Stevens, before R.Ae.S.
- Nov. 20 .. Lecture, "Recent Developments in Engine Cooling," by Capt. H. Swan, before R.Ae.S.
- Dec. 4 .. Lecture, "The Four-Foot Wind Tunnel," by H. Glauert, before R.Ae.S.
- Dec. 11 .. Lecture, "Axial Engines," by M. L. Bramson before R.Ae.S.
- Nov. 28-  
Dec. 14 .. Paris Aero Show.

1932  
May 31 .. Closing date for Cillon Cross-Channel Glide £1,000 Prize.

## EDITORIAL COMMENT



THE return of Col. Barrett-Lennard from his inspection tour of the African airway and the striking remarks of Sir Eric Geddes at the annual general meeting of Imperial Airways, Ltd. (which are summarised on another page), have brought that company very much into the public eye at the moment. It is a moment when a very great expansion is imminent, an expansion which will certainly place the British Empire at the head of the world's air transport, if not actually in mileage, certainly in the importance of its services. We have often pointed out that the composition of the British Empire made it inevitable that air development must be slower than in such a land as the United States, but that air development, when it did come, would be more important than any air effort elsewhere. During this winter Imperial Airways should receive new aircraft of two different types, and equipped with them they are to open the first stage of the airway to Capetown early next year. It is certainly a very great and momentous undertaking.

The expansion of airways, if it is to be satisfactory, depends very largely on using the right aeroplane in the right place. The operating firm hangs on the designer. The delivery of two new types will mean a radical redistribution of the company's fleet. The new Handley Page type 42, which is driven by four Rolls Royce "F" engines, and normally has seats for 40 passengers, is being produced in two models, European and Eastern. The former will be used on the section of the route from Croydon to the Mediterranean. Which Mediterranean port will ultimately be used cannot be stated with certainty. Sir Eric Geddes said in his speech that the Italian Government had quite recently agreed to the service being resumed through Italy, but he did not say definitely that it would once again pass through Genoa. Anyway, whatever the European port may be, the service will there be taken up by the new Short Calcutta flying-boats. These will be driven by four "Jupiter"

engines abreast. They will seat 17 passengers and a crew of four. One novelty about them will be the bottom section of the hull, which will not be of duralumin, but of stainless steel. These boats will fly for the present to the harbour of Alexandria. The Egyptian Government has in hand the preparation of a new airport for seaplanes and landplanes at Dikheila, some five miles west of Alexandria across the bay. At present the aerodrome is being levelled. The Egyptian Government will erect, in due course, hangars, control tower, and all the other equipment of a modern aerodrome. Imperial Airways will erect their own workshops there when the time comes. In the meantime, passengers are sent on by the evening train to Cairo. There the Indian and African services diverge.

The Indian service from Cairo to Karachi will be carried on by Handley Page 42 type landplanes of the Eastern model. It is essentially the same as the European model, but two or three less seats are provided, the upholstery will be of a cool instead of a warm material, and more room will be provided in the wireless cabin. In fact, they will be adapted to the conditions of an Eastern route.

The passengers for African destinations will embark at Cairo on Armstrong-Whitworth "Argosy" machines, which will then have an installation of three geared Jaguars apiece. A later model of "Argosy" is being retained for the European services, while the three machines of the older type will work between Cairo and Khartum. The first day's flight will cover 670 miles, reaching Assuan with intermediate stops at Assiut and Luxor. Luxor has considerable importance in the tourist season, but when that season is over the landing there may be omitted. Next day the "Argosy" will cross the frontier into the Sudan, and will cover 645 miles to Khartum, with stops at Wadi Halfa and Kareima. At Wadi Halfa, as at Assuan, the Sudan Government Railways and Steamboats are putting up a hotel. At Kareima, Imperial Airways are erecting their own rest-house. On the third day the passengers leave Khartum in a three-engined "Calcutta," of which three are available. They have a longer journey that day, 825 miles in all, with three intermediate halts before they stop for the night at Juba. The stops will be made at Kosti, Malakal, and Shambah. Kosti is a railway junction. Malakal has no particular importance of its own, nor has Shambah, but it is desirable to stop for re-fuelling. One reason for choosing flying boats for this section of the route is that most of the aerodromes in this part of Africa are too swampy to allow large landplanes to use them in the rainy season. In the earlier flights across Africa the next stop after Malakal was Mongalla. This has now been discarded in favour of Juba, some 20 miles farther to the south. It is also 10 miles to the north of Rejaf, the chief town of the district. At Juba there has been discovered a site which promises to make a good aerodrome for use all the year round, and work is in progress in getting it ready. So it seems that Juba will become the chief centre of the district, and air transport will have played its part in bringing this about.

The fourth day's journey will be one of the most interesting and eventful, and will cover 705 miles. The first stage will take the "Calcutta" across the border from the Sudan into Uganda. The machine will first land on Lake Albert at Butiaba, changing over from the Nile valley (if valley it can be called) to the area of the Great Lakes. Butiaba, though not

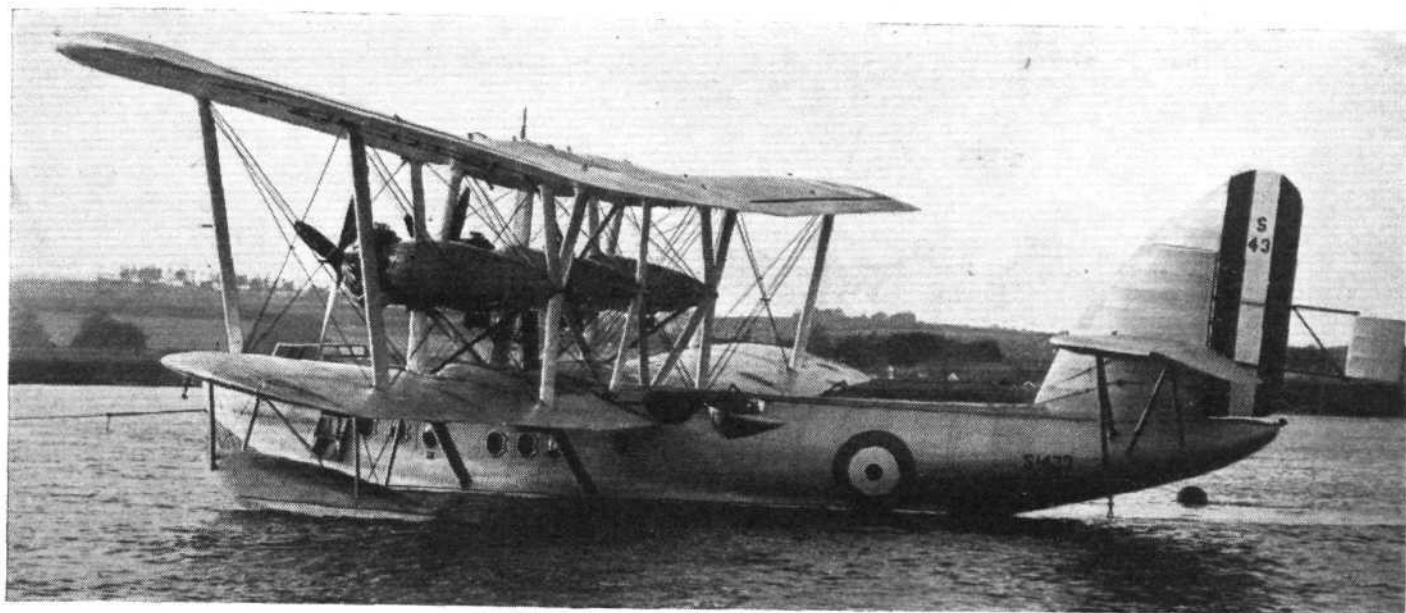
marked on all maps, is a place of some importance, as it lies on the route from a gold-producing district of Belgian Congo to the coast. Another 140 miles takes the "Calcutta" on to Lake Victoria, where it will come down at Port Bell near to Kampala, the capital of Uganda. The land aerodrome in this district is at Jinja, a name which has become familiar from landplane flights down Africa. The next stop is at Kisumu, and in the meantime the passengers will have crossed from Uganda into Kenya. They are still, however, on Lake Victoria. Kisumu is no longer the inland head of the railway to Mombasa, which has now been extended some distance to the north. It remains an important place, but it is rather expected that its importance will gradually diminish. Here another change will take place, for the passengers will say "Good-bye" to the "Calcutta," for which we feel sure they will have acquired a warm affection, and will transfer to a "Hercules," which, no doubt, they will also find a very pleasant aeroplane. They will also say "Good-bye" to the Great Lakes and strike off to the south-east, following the railway line for 185 miles up to Nairobi, the capital of Kenya, where they will spend their fourth night.

On the fifth day they will fly 640 miles. First, they will pass from Kenya to Tanganyika, and will make their first landing at Moshi, the centre of a coffee-growing district. At Dodoma, the second halt for re-fuelling, they will strike the main Tanganyika Railway to Dar es Salaam, and may take on some passengers from the train who want to head south instead of east. They will spend the night at Mbeya, a place of no importance in itself, except that it is a convenient end of the stage. The sixth day will be as long as the third, namely, 825 miles. The frontier will be crossed into Northern Rhodesia, and the first halt will be made at Mpika to re-fuel. This place also has no commercial importance, and from the traffic point of view the "Hercules" will still be in the wilderness. But another 275 miles will take it on to Broken Hill, and there it will regain touch with traffic possibilities. The frontier will then be crossed into Southern Rhodesia, the frontier being the Zambesi River, but as the "Hercules" will be heading south-eastward for Salisbury, the capital, the travellers will not cross the river within 400 miles of the Victoria Falls. The night will be spent at Salisbury, doubtless with a feeling of having returned once more to civilization. The seventh day will take the "Hercules" for 690 miles through Bulawayo (a halt) across into the Union, with a second stop at Pietersburg (not to be confused with Pietersmaritzburg in Natal) to Germiston, a few miles from Johannesburg, where the night will be spent. On the eighth and last day, the "Hercules" will cover the remaining 805 miles, with halts at Kimberley and Victoria West, to the terminus at Capetown.

It will have been a delightful and varied journey, carried through in five different types of aircraft. The difference of the types will provide Imperial Airways with plenty of data as to what is most suitable.

The arrangement is certainly temporary. To deal with three different types of aircraft and two types of engine in Africa alone must certainly be a complication. It may in time be found possible to specify one new type which can be used all the way from Alexandria to Capetown. On the stages where land aerodromes cannot be used in the rainy season, interchangeable float-gear will be necessary. Developments will be interesting to follow.

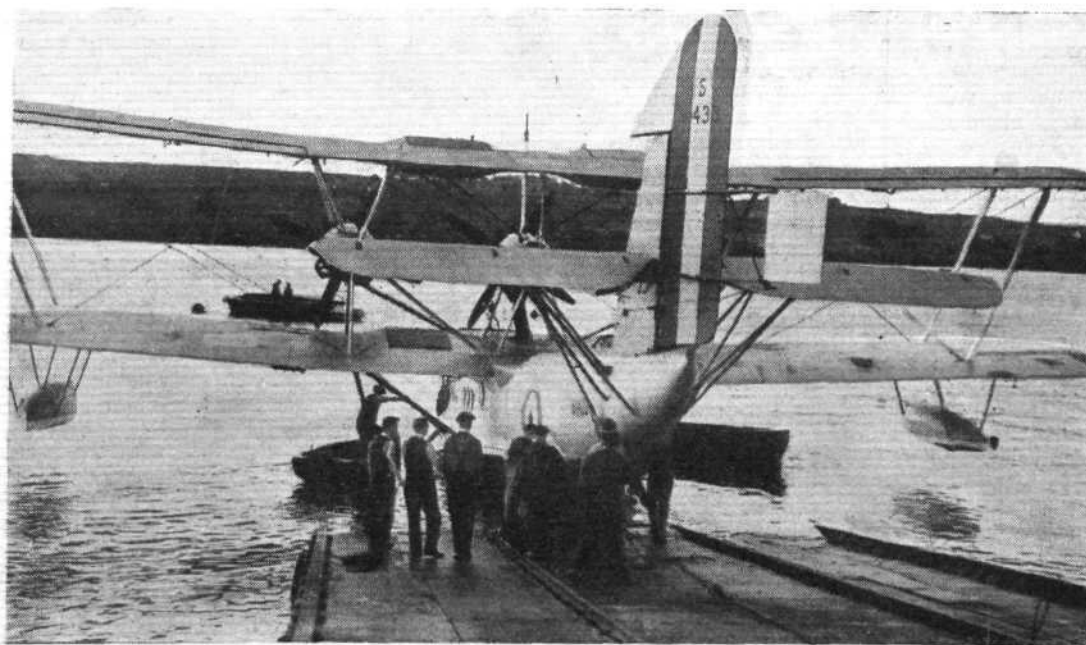
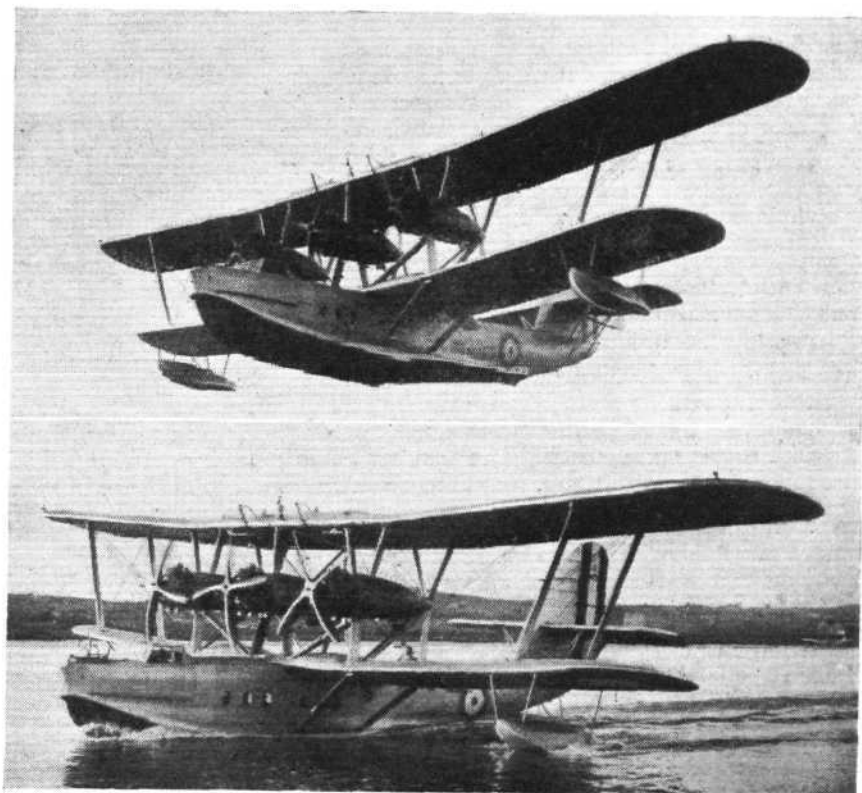




## SHORT "CALCUTTA" (Service Type)

THE recent history of flying boats produced by Short Brothers of Rochester has shown a rather remarkable mutual effect of service and commercial types. First there was the "Singapore I" service type, with two Rolls-Royce "Condor" engines. This machine was later lent to Sir Alan Cobham for a civilian tour of Africa. As a result of the experience with the "Singapore," the "Calcutta" civil type (three "Jupiters") came into being and proved a great success. Then came the "Singapore II" service type with four Rolls-Royce "F" engines. And now has been launched the "Calcutta" service type with three Bristol "Jupiter IX F" engines, shown in the photographs on this page.

The "family resemblance" is quite unmistakable, and the service type of "Calcutta" does not differ fundamentally from the civilian version used by Imperial Airways, Ltd., on stages of the London-India route. The internal arrangements are, of course, quite different, the service type of machine being an open sea reconnaissance flying boat. Other alterations as compared with the civilian machine are the gunners' cockpits in the nose of the hull and projecting from the hull sides aft of the wings.





## WESTLAND "WESSEX"

A Small Three-Engine Machine With Many Various Applications

**A**MONG the pioneers of British producers of commercial aircraft may well be classed the Westland Aircraft Works of Yeovil. Already as long ago as 1919, that firm produced a little four-seater limousine biplane with Rolls-Royce "Falcon" engine, although the fact may have been forgotten by many of our readers by now. While engaged mainly on the production of service aircraft, of which many notable types have been turned out—the latest and by far the most popular being the "Wapiti," of which we believe more than 300 have been built—Westlands have ever kept an eye on the progress of civil aviation and its requirements, and Mr. Bruce, Westland's managing director, is a firm believer in the great future of civil aviation. It may be recollected that several years ago Westlands produced the "Widgeon" two-seater light monoplane. Owing to the large volume of work in hand—on service types of aircraft—it was decided not to go into mass production with the "Widgeon," although the machine was very successful. But work was begun on another type, of the "feeder line" class, which was ultimately produced late in 1928 and flown early in 1929. This type was known as the Westland IV, and with it a considerable amount of experimental research work was carried out. The "Wessex," which forms the subject of this article, is the outcome of the experience gained with the Westland IV, and in it such "teething troubles" as were met with in the earlier machine have been entirely eliminated, so that the "Wessex" can be offered to the aircraft operator as a well-tryed and really practical machine, suitable for "feeder line" work, as a passenger or goods carrier, as an air mail machine, as a taxiplane, or as a private machine for the owner who desires something a little more ambitious than the more usual 2- or 3-seater.

The Westland "Wessex," fitted with three Armstrong

| Dimensions                          |                  |                 |         |
|-------------------------------------|------------------|-----------------|---------|
|                                     | ft.              | in.             | metres. |
| Length o.a.                         | 38               | 0               | 11.55   |
| Wing span                           | 57               | 6               | 17.5    |
| Wing chord                          | 9                | 6               | 2.9     |
| Height                              | 9                | 6               | 2.9     |
| Wheel track                         | 15               | 0               | 4.56    |
| Areas                               |                  |                 |         |
|                                     | sq. ft.          |                 | sq. m.  |
| Wing                                | 490.0            |                 | 45.5    |
| Ailerons                            | 38.4             |                 | 3.27    |
| Tailplane                           | 44.5             |                 | 4.13    |
| Elevator                            | 31.0             |                 | 2.88    |
| Fin                                 | 7.25             |                 | 0.67    |
| Rudder                              | 21.75            |                 | 2.02    |
| Weights                             |                  |                 |         |
|                                     | lb.              |                 | kg.     |
| Machine bare                        | 3,425            |                 | 1,551   |
| Fixed equipment                     | 74               |                 | 34      |
| Tare weight*                        | 3,499            |                 | 1,585   |
| Fuel and oil                        | 875              |                 | 397     |
| Pilot                               | 180              |                 | 82      |
| Pay load                            | 1,196            |                 | 542     |
| Total gross weight                  | 5,750            |                 | 2,606   |
| Loading                             |                  |                 |         |
| Power loading on normal horse-power | 18.6 lb./h.p.    | 8.44 kg./CV     |         |
| Wing loading                        | 11.7 lb./sq. ft. | 57.1 kg./sq. m. |         |
| Performance                         |                  |                 |         |
| Maximum speed                       | 108 m.p.h.       | 174 km./h.      |         |
| Cruising speed                      | 95 m.p.h.        | 153 km./h.      |         |
| Stalling speed                      | 52 m.p.h.        | 83 km./h.       |         |
| Initial rate of climb               | 530 ft./min.     | 2.7 m./sec.     |         |
| Duration, full fuel                 | 5½ hours         | 5½ hours        |         |
| Range, full fuel                    | 520 miles        | 838 km.         |         |
| Duration 2/3 fuel                   | 3¾ hours         | 3¾ hours        |         |
| Range 2/3 fuel                      | 350 miles        | 560 km.         |         |
| Service ceiling                     | 10,000 ft.       | 3,050 m.        |         |
| Absolute ceiling                    | 12,300 ft.       | 3,750 m.        |         |
| Maximum height, two engines         | 4,000 ft.        | 1,220 m.        |         |

\* This figure refers to the goods machine. The movable equipment for the passenger machine weighs 101 lb. (46 kg.), giving a tare weight of 3,600 lb. (1,631 kg.). The pay load is then 1,095 lb. (496 kg.).

When carrying 2/3 fuel, the pay load is 1,488 lb. (674 kg.) for the goods machine, and 1,387 lb. (628 kg.) for the passenger machine.

Siddeley "Genet Major" engines, is a "two-and-a-half tonner," i.e., its gross weight is 5,750 lb. As a goods machine the tare weight is 3,500 lb., so that the disposable load is 2,250 lb. This represents a ratio of gross to tare weight of 1.643, or, in other words, the machine carries as load 64 per cent. of its tare weight. For a three-engined monoplane type of machine, this must be regarded as a good figure, and points to considerable care and skill in the structural design, especially as it is combined with wing and power loadings which cannot be regarded as other than very moderate (wing loading 11.7 lb./sq. ft. Power loading 18.6 lb./h.p.). Looked at in another way, the disposable load represents 7¼ lb. per h.p., the possibility obviously existing for dividing this disposable load in any ratio desired for the particular purpose for which the user intends to employ the machine. As actually built (a number of "Wessex" machines have been delivered to the Belgian S.A.B.E.N.A. Company), the "Wessex" has petrol capacity for 5½ hours, representing a still-air range of 520 miles. With that range, and if used as a goods machine, the pay load (i.e., load exclusive of fuel, oil and pilot) is 1,200 lb., or 3.9 lb./h.p., based on normal full power. If less petrol is carried, the pay load is, of course, correspondingly increased. For

example, with the tanks two-thirds full, the range is reduced to 350 miles, and the pay load is increased to 1,488 lb., or 4.8 lb./h.p. Thus, the "Wessex" should be quite an economical machine to operate as a goods or mail carrier, although for the latter purpose its cruising speed (95 m.p.h.) might be a little low, except possibly for a night air mail service, for which purpose the three-engined power plant arrangement and ability to fly on any two engines should give sufficient reliability.

The subject of pay load and range is closely bound up with





The Westland "Wessex" in flight, photographed from another Westland Aeroplane. (FLIGHT Photo.)

that of performance, and in the Westland "Wessex" a very useful compromise has been made between these mutually opposed desiderata. We have already indicated that the disposable load is good for a machine of this type. By choosing a suitable combination of wing and power loadings, the Westland designers have achieved a performance which represents a good compromise between climb, speed and small power requirements at cruising speed. The power loading, owing to the considerable useful load carried, is fairly high (18.6 lb./h.p.), and it is an axiom among British aircraft designers that one may have a high wing loading or a high power loading, but that one should not have both. The application of that fundamental principle has resulted in British aircraft always being far from what the French in the old days of flying used to call *tangent*, i.e., near the point where the power required and power available curves touch each other. In the "Wessex" the wing loading has been kept down to 11.7 lb./sq. ft., a figure which, especially with a monoplane, gives not only a reasonably low landing speed, but also, in conjunction with fairly low span loading, a fairly small value of induced drag and consequent good take-off and climb.

In the general design of the Westland "Wessex" there are, perhaps, two features which particularly distinguish this machine from others of the same class: the mounting of the outboard engines on outriggers from the fuselage, bracing the wings from the apices of the outriggers, and the placing of the engines in such a way that not only do the propeller discs not overlap, but the tips of the outboard propellers are actually below the level of the wings, so that the slipstream does not, except possibly to a very limited extent, interfere with the airflow across the wing.

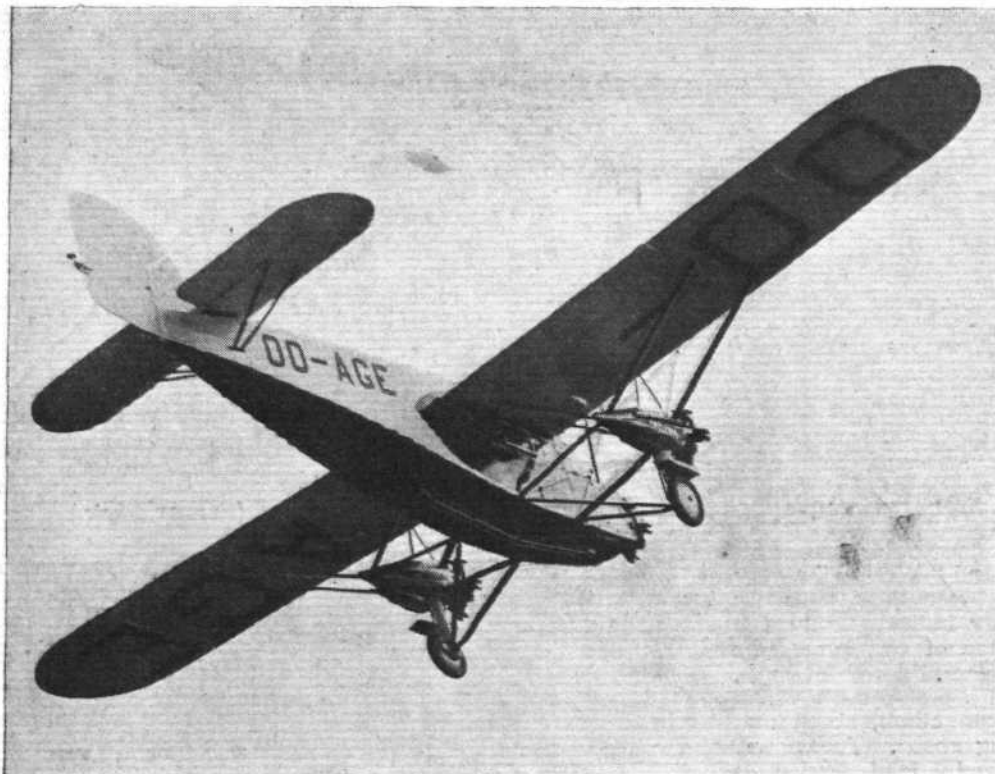
The wing section employed in the "Wessex" is that known as R.A.F. 34, which has a very small movement of the centre of pressure. It is claimed that this fact, coupled with the high-wing monoplane arrangement, renders the machine very stable at all speeds, and controllable near and even beyond the stall. Purchasers who so desire may, presumably, have Handley Page automatic slots fitted at extra cost.



MODERNITY: On the Westland "Wessex" a tail wheel is used instead of the old-fashioned tail skid.



FOR "FEEDER LINE" OR AIR TAXI WORK: The Westland "Wessex" is a six-seater, fitted with three "Genet Major" engines.



**An unusual view : The Westland "Wessex" from below.**

(FLIGHT Photo.)

could have been built in wood, this is by no means always the case, and examples are not lacking of machines which, "translated" into all-metal construction, became both heavier and more expensive as a result. In the "Wessex," as we have said, the designers have used wood and metal with discrimination, each where it seemed most suitable.

The fuselage is composed of three individual portions, of which the central or cabin part is of wood construction, the forward part is partly of wood and partly of metal, while the aft part, from cabin to tail, is of all-metal construction (square-section Duralumin tubes joined by fitch-plates and tubular rivets).

The wings are of wood construction, with box spars having spruce flanges and three-ply walls. The ribs are of spruce, arranged as Warren girders. The control surfaces (ailerons, elevators and rudder) are of metal construction, with Duralumin tube spars and pressed-out sheet metal ribs. The covering is fabric.

An undercarriage of very wide track (15 ft.) supports the machine. The undercarriage on each side consists of a horizontal vee, formed by the bent axle and the radius rod, hinged to the lower longerons of the cabin, and of a telescopic leg which runs to the outboard engine structure. This is, in turn, carried on steel tube outriggers from the fuselage, and from it also the outboard wing bracing struts run. Thus the various heavy items: wings, engines and fuselage, have their loads conveyed to and converging upon the single point at the top of the telescopic leg. The arrangement is neat and must be very rigid. Doubtless it accounts in quite a substantial degree for the relatively good ratio of gross to tare weight of the machine.

Bendix-Perrot wheels and wheel brakes are fitted on the "Wessex." The brakes are operated by a lever in the pilot's cockpit, and the system incorporates a brake compensating gear. With the fitting of wheel brakes, the need for a tail skid disappeared, and the latest "Wessex" machines have been fitted with a tail wheel. This is swivelled and has a castor action, so that the machine can be swung around on the ground in a very small circle, a manoeuvre which the wide wheel track makes quite safe. By the use of the wheel brakes the landing run is reduced, against a 5 m.p.h. wind, to 163 yards.

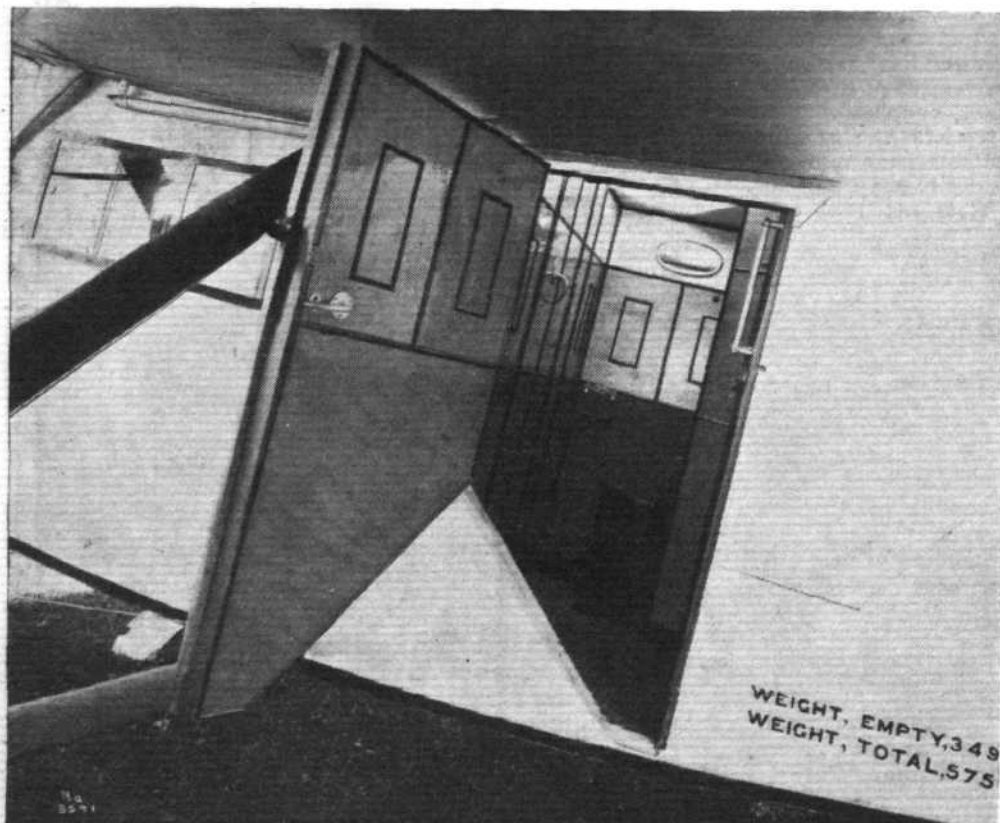
#### Power Plant Installation

The engines fitted as standard in the Westland "Wessex" are Armstrong-Siddeley "Genet Majors," developing a normal output each of 309 b.h.p. at 2,200 r.p.m., and a short-period maximum of 330 b.h.p. at 2,420 r.p.m. One engine is mounted on a metal structure, in the nose of the fuselage, while the other two are carried outboard under the wings, on outriggers from the top and bottom longerons of the fuselage. A fore-and-aft tube

**No steps required : The door of the Westland "Wessex" is low over the ground, and passengers step straight in.**

#### Constructional Features

The Westland "Wessex" is of mixed construction. That is to say, the designers have not blindly given in to the prevailing "craze" for all-metal construction, but have employed it only as and where there was real advantage in doing so. We say "craze" deliberately because we feel that the modern demand—almost universal—for all-metal construction is not always based upon a thorough understanding of all the problems involved. When the British Air Ministry first announced that, after the lapse of a certain period, all service machines must be of all-metal construction, the main reason was that in time of war it would be impossible to guarantee a sufficient supply of the necessary high-grade woods. At the time it was not, we believe, assumed that metal construction would necessarily be lighter than wood construction. That fact is sometimes overlooked nowadays. While certain machines have been built in which the weight of the all-metal structure was lighter than





### Mounting etc. of the starboard "Genet Major" in the Westland "Wessex."

connects the apices of the two outrigger vees, and forms, together with two more fore-and-aft members, a horizontal tripod support for the outboard engine. Torque-reaction is taken by an inverted vee running to the front wing spar.

Petrol is carried in two tanks in the wings, each of 50 gall. capacity. The height of these wing tanks is such as to give ample head for direct gravity feed. Large petrol gauges are mounted ahead of the leading edge, one in front of each tank, and the gauges can be seen and read from the cockpit. As the three "Genet Major" engines consume approximately 18 gall. per hour, the machine, cruising at about 95 m.p.h., does  $5\frac{1}{4}$  miles per gallon.

### Accommodation and Equipment

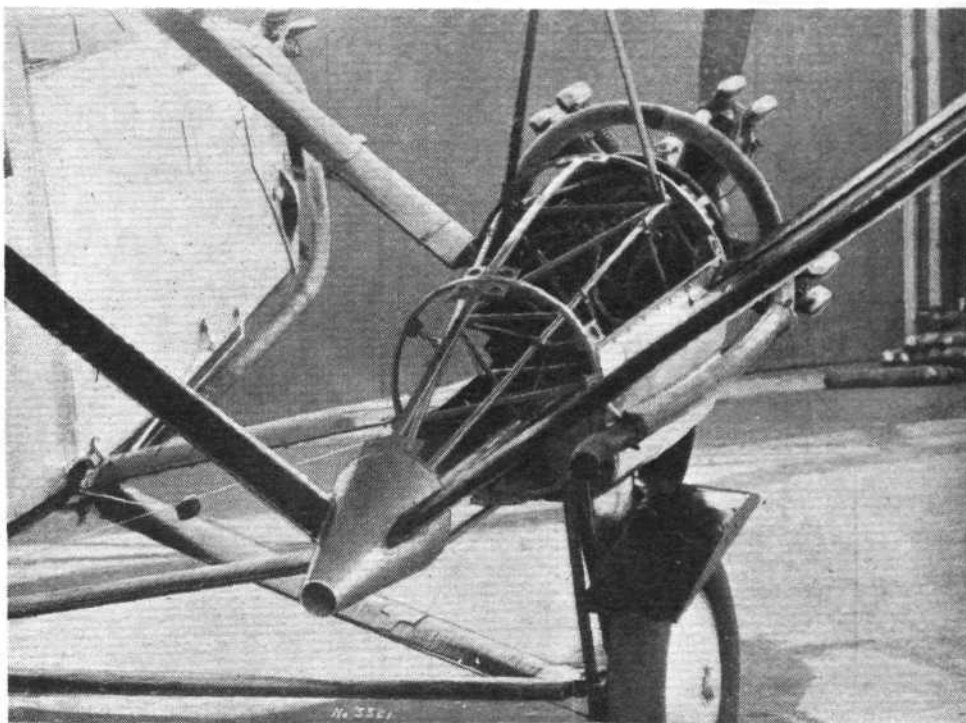
The internal lay-out of the "Wessex" will naturally depend upon the purpose for which the machine is being used. As a freight-carrier the cabin equipment will be removed, and all the available space used for freight. The cubic capacity of the main cabin is 108 cu. ft. ( $3.06 \text{ m.}^3$ ), while the entrance and lavatory space adds another 35 cu. ft. ( $0.99 \text{ m.}^3$ ). The volume of front and rear luggage compartments is 42 cu. ft. ( $1.19 \text{ m.}^3$ ), giving a total available space for cargo of 185 cu. ft.

As a passenger machine the "Wessex" can be arranged according to requirements. For example, if the maximum comfort and convenience is wanted, there are four seats in the cabin, two on each side, with a gangway between them. In that case there is an entrance and lavatory behind the cabin. On the other hand, the available space may be utilised by doing away with the entrance and lavatory space, when two more seats may be installed, bringing the total up to seven (six in the cabin and one beside the pilot).

The passenger version has very comfortable seats, and large windows in the cabin walls give a good light and view. Owing to the fact that the fuselage is very low over the ground, the passengers can step straight in without using steps. Behind the cabin is a luggage space with a separate door.

The pilot's cockpit, in front of the cabin, is weatherproof, and has a hinged skylight which also serves as an emergency exit in case of accident. Sliding Triplex windows form a windscreen, and sliding windows at the side of the cockpit give a good view, while the fact that they can be opened enables the pilot to put his head outside during landing, etc.

Considerable care and attention has been given to the lay-out of the cockpit, placing of instruments and controls, etc. The instrument-board is placed at a convenient height and at an angle which facilitates the reading of the instruments. The placing of the instrument board under the large front windscreen gives good lighting. On the left of the pilot are the three engine controls, the tail-plane trimming-gear lever, and the wheel brake lever. On the pilot's right is the rudder bias lever, which enables him to set his rudder to



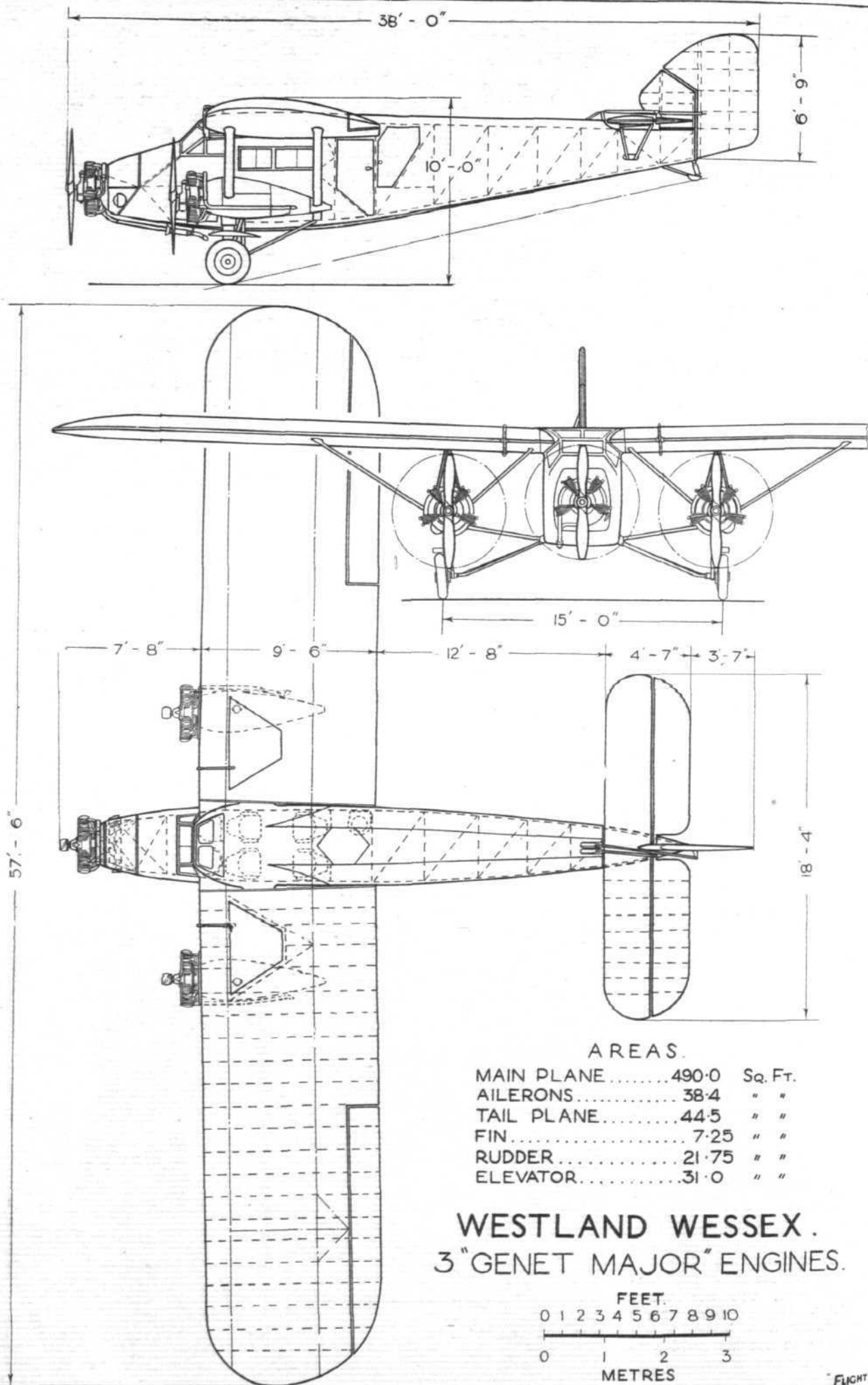
any desired angle to counteract any yawing tendency resulting from one of the wing engines running badly or being out of action. This rudder bias gear removes the load from the foot bar and relieves the pilot on a long flight. With everything properly adjusted the "Wessex" will, we are informed, fly itself for long periods.

The "Wessex" is particularly well equipped in the matter of instruments. For example, the following instruments (Smith's) are provided as standard: air-speed indicator, altimeter, cross level, time-of-flight clock, three revolution indicators, three oil-pressure gauges, three oil-temperature gauges. The compass fitted is a Hughes Mark P.4 and every machine is also provided with Schilovsky-Cooke turn indicator. At extra cost the machine can be provided with night-flying equipment, consisting of navigation lights, Holt flares, and downward identification lamp. In the cabin are mounted, for the benefit of the passengers, an airspeed indicator, an altimeter, and a clock.

All the main data relating to the Westland "Wessex" are given in the panel on p. 1082. The performance figures given are confirmed by official Air Ministry tests at Martlesham for the Certificate of Airworthiness. The results refer

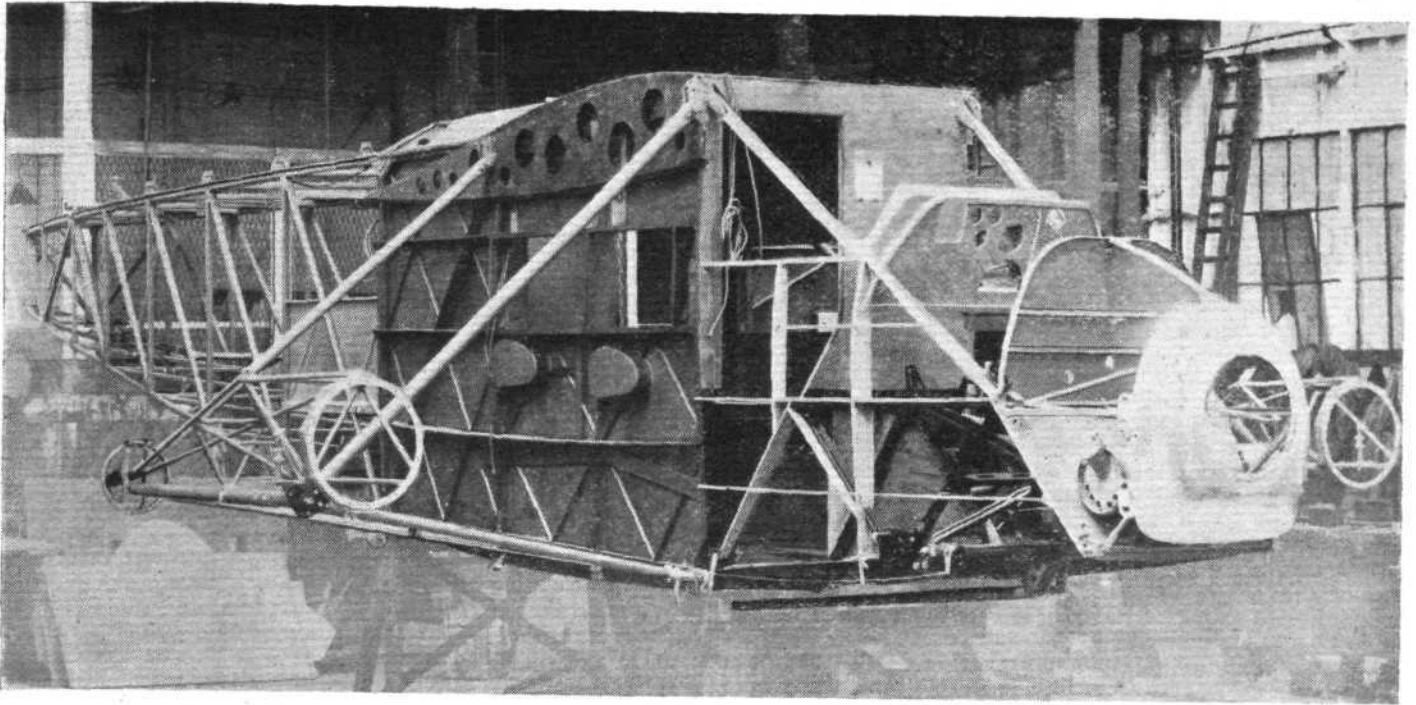


With the Cowling in place: Note the careful streamlining of the outboard engines



THE WESTLAND "WESSEX" : General Arrangement Drawings. Since these drawings were prepared a tail wheel has been substituted for the skid.





**IN COURSE OF CONSTRUCTION :** This photograph of the fuselage of the "Wessex" gives a good idea of the structure, and also shows one of the outrigger mountings for the outboard engines.

to standard atmospheric conditions. Where climatic conditions differ materially from standard, the Westland Aircraft Works should be consulted as to the likely effect on performance.

We are not aware that the Westland "Wessex" has hitherto been "put on floats," but it would appear that to do so should not be a very difficult matter. The struts supporting the floats might have to be rather longer than the telescopic legs of the wheel undercarriage so as to get the

nose propeller clear of the spray from the floats, but otherwise, except for a possible strengthening of the rear outriggers, it would appear that no great modifications would be required. The machine, with its wide track and placing of the wing engines, should make a very useful seaplane, the wide track giving stability on the water, and the outboard engines giving great manoeuvrability. In many parts of the Empire a seaplane of this type should be a very serviceable machine.



#### R 101 Out Again

R 101 was taken out of her shed at Cardington early on the morning of Wednesday, October 1. The insertion of the new bay aft of the passenger coach has added an additional 45 ft. to her length, which is now 777 ft. Her capacity is 5,500,000 cub. ft., and her gross lift upwards of 165 tons. One heavy-oil starting engine has been installed in one engine car. The other four engines are still started by Ricardo petrol engines. The airship started the same afternoon at 4.36 p.m. for a trial flight over London and up the east coast. The intention was that, if all went well, she would return to her tower the following morning. She could then be got ready to start for Ismailia and Karachi in 48 hours. R 101 passed over FLIGHT Office, flying low, at 6.30 p.m.

#### Calcutta Flying Boats for Basra

THE three "Calcutta" flying boats ordered by the Air Ministry from Short Bros., Ltd., one of which made a successful trial flight at Rochester on September 24, are expected to be ready by the end of the year. They will then be sent out to Basra to re-equip No. 203 (Flying Boat) Squadron, which is stationed there. The "Southampton" with which the squadron is at present equipped will then fly back to England. At the same time, Group-Capt. W. L. Welsh, D.S.C., A.F.C., at present on the H.Q. staff of the Coastal Area, will take over the command of the station of Basra.

#### A Bear as Air Passenger

A BEAR was recently transported in an aeroplane from Constantinople to Berlin, en route for the Zoo there.



# PRIVATE FLYING AND CLUB NEWS



## ROBOROUGH AERODROME OPENED

ON September 24 the new Plymouth aerodrome at Roborough was formally opened, and an inaugural meeting was arranged by Mr. B. Wilson and the Plymouth Aero Club.

The weather started off promisingly, but clouded over rather, later on, though not enough to hinder the programme to any great extent. Some ten visiting aircraft arrived at intervals throughout the day, and a pleasing feature of the meeting was the number of pilots who brought their wives. Many of these ladies had not attended a meeting before this, and they lent a cheerful note with their fresh comments on all matters, since many of their husbands are, now at the end of this strenuous season, somewhat tired of meetings and quite incapable of making interesting remarks on the subject.

Before the meeting began a formation of Southampton flying boats came over from Mount Batten, and these were followed by an Iris. Plymouth is, of course, fairly well acquainted with flying boats, but this formation created a lot of interest with the crowd which had already started to collect.

The first event was by Flt. Lt. T. Rose, who, on his Sports Avian (Hermes), put up an excellent show of aerobatics which drew an enormous amount of applause from the crowd. This was followed by a car-bombing competition. A somewhat novel form of car was used for this event, as two Austin 7's had been "dressed up" to represent "battleships," and excellent they were. Mr. Thorn secured the first prize, and in doing so he made a direct hit. Flt. Lt. Rose was the second, and Mr. B. S. Allen the third in an Avian (Hermes). Mr. Allen set an example to be followed at future meetings by letting his lady passenger do the bombing, and no doubt at Gatwick next Saturday we shall see this combination carrying off the first prize.

Mr. Bentley flew "crazily" on his Moth (Hermes) in his well-known manner, and provided one of the most spectacular events of the afternoon.

Mr. H. Broad inverted his Moth (Gipsy I), and appeared to prefer that attitude for general flying, for he never stayed the normal way up for any appreciable period.

A balloon-bursting competition brought a good entry, and this was won by Mr. Brown, who burst both the pairs of balloons sent up for him. Mr. Brown was also doing the announcing in his usual clear and excellent style during the other events, and his comments lucidly explained the manoeuvres of the aerobatics, as well as the different machines and the lighter events. Mr. Wood, of Surrey Flying Services, took the second prize with his joy-ride Avro, and Flt. Lt. Rose the third.

Mr. S. A. Thorn, of Cirrus Engines, Ltd., then took up his Avian (Hermes) and gave an excellent display of slow rolling and other manoeuvres. In the Sports Avian which he was flying he has an exceptionally good machine for this job, and the engine is a treat. This, a Hermes, is really worthy of mention, as it is the same engine as he took round the King's Cup Race and then round the International Touring Competition, and it has done some 60 hrs. on full throttle without losing any of its tune, and is still one of the sweetest engines to sit behind that we have tried. This is probably largely due to the modifications which are now standard on the Hermes II, including new pistons, camshaft and modifications to the oiling system, and certainly with these alterations the Hermes has proved itself as a thoroughly reliable and trustworthy engine. Mr. Thorn's slow rolls were one of the features of the meeting, and his method of rolling on to his back with a subsequent loop from that position and a roll off the top were well worth watching.

Flt.-Admiral Ardtomis then shot at some bottles suspended from a suitable target, and was aided in his nefarious fraud by being taken out to his machine in one of the "battleships"! He was duly exposed, in the now time-honoured way, by a miscreant with a hammer. Mr. John Trantum then "did his stuff," as they say, by falling out of Flt. Lt. T. Rose's Avian (Hermes) at about 2,000 ft. and landing in the middle of the landing circle on the aerodrome with the aid of his Russel Lobe parachute, after which he was transported round the enclosures in a "battleship," much to the

amusement of those present who were connected with the legitimate use of battleships!

Roborough is the new municipally-owned aerodrome for Plymouth, and is no doubt the best site available, but it is interesting to note that it is farther from the town than are many other municipally-owned aerodromes, and considerably farther than is the newly-proposed aerodrome which, at Shoreham-by-Sea, will serve Brighton, Hove, Shoreham and Worthing, which is only about six miles from any one of them, and moreover has a railway station actually on the site, with a main road at each of two ends, a secondary road on one side, and a river which might, possibly, be used for a seaplane landing station on the other. These municipalities are among the most alive in the kingdom, and there is little doubt that when they get this aerodrome going they will see to it that their manager makes it one of the biggest attractions to their multitudes of visitors who now come throughout the best part of the year, and if the present negotiations are successfully carried through, we may expect to see something really attractive and up to date at Shoreham during the next seasons, which will be a model to all other municipalities, and a monument to the efficiency with which all such things are done in the south.

The crowd at Plymouth must have numbered well over 10,000, and this speaks well for flying in the west country. Many local celebrities were present, and among them, Lady Astor, who was brought over by Flt. Lt. S. David, in Mr. Everard's Puss-Moth. Private owners were not there in large numbers, but among them were Mr. Jackman, in his Puss-Moth; Mr. Parkhouse, from Teignmouth; Mr. Robinson, in one of the new Desoutter II's; and Mr. E. C. Brown, who was doing the announcing.

In the evening there was an excellently managed dinner at the Royal Hotel—we wonder if the ghosts of war-time days had anything in common with the party that night?—and there were many speeches afterwards. Some were witty, while others could have been, as usual, dispensed with, but the chairman did his best when he announced that the toast-master had orders to pull down anybody who had spoken for more than three minutes. This was, of course seized upon by that quick-witted private owner, Miss Winifred Brown, and when called upon to make a speech, she did so in a few words and informed the company that she would have to sit down quickly, as she was afraid of hearing that much dreaded cry of "time, gentlemen, please!"

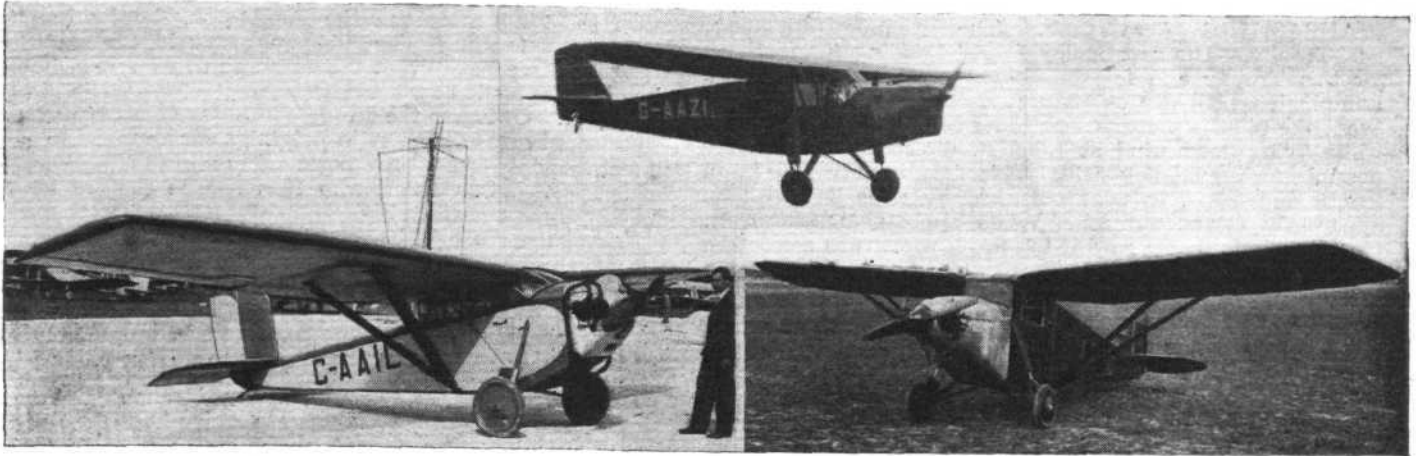
Dancing completed the programme, and was carried on until the early hours, when the hardiest spirits prepared to leave the aerodrome. Some were, in fact, back at Croydon by 9.30 the next morning, while it is said that one large individual responsible for the safety of many who fly at that aerodrome, found the trip back at that early hour somewhat more than his inside could comfortably cope with; at any rate, the man who asked him whether it was true that, while on duty, he was reported as looking like an old washer-woman sticking pins into a map, found that he was not quite so green as he looked.

CINQUE Ports Flying Club.—The club is getting more cosmopolitan daily. Last week, apparently, they committed a *faux pas* by alluding to Mr. Caffoor as "an Indian from Ceylon." This, he informs them, is equivalent to calling a person an Englishman from South Africa. They tender their apologies to Mr. Caffoor, who is a Moslem and a Ceylonese.

This week they had the pleasure of welcoming a Spanish member, Senor Don Jose Fonrodona. Also, under instruction were Signor Cianchi and two Chinese, Messrs. Wang and Sun. The language difficulty is very acute with the latter.

The equinoctial gales which raged during the latter part of the week stopped all flying on Friday and Saturday, and this was unfortunate, as four members, Messrs. J. Searle, J. Bowring, L. S. Hiltbrunner and C. Cornwell are flying solo, and ready for tests. Mr. O. V. S. Heath, of Esher, was sent for his tests on Wednesday, and managed to reach the necessary 7,000 feet through a small hole in the cloud layer, and got down again before the clouds closed up for the end of the week. This was a very good performance.





Cabin machines suitable for the private owner. Left, the Civilian Coupé (Hornet); right, the Robin (Hornet); above, the Desoutter (Gipsy II). (FLIGHT Photos.)

On Saturday, one of the club officials and his wife crossed from Paris, in a Fokker, and perfect comfort, at the height of the great gale. They derived much satisfaction from watching a large steamer, with decks awash, in the heavy sea below.

**BROOKLANDS Flying School.**—The Brooklands School of Flying has been engaged in evolving a system which will ensure that no pupil goes solo without complete training, and which is, at the same time, sufficiently simple to be easily worked.

It has been found possible to secure this by a simple system which ensures: (a) that each pupil has received instruction in every element; (b) that all faults have been eliminated in each category.

The first object is secured by a large chart, in the form of a blackboard on which are the pupil's names. Sub-divisions correspond to all the phases of instruction, from "the effect of the controls" to "spins" and "forced landings." As each pupil satisfactorily completes that phase, the sub-division is marked off and the true experience of each pupil—as opposed to a tally of flying hours—can be seen at a glance.

In addition, on the completion of each instructional flight, the pupil receives a printed report, on which are listed such points as right-hand turns, engine off landings, etc. At the conclusion of each flight, the instructor notes on this report any faults—such as "too much rudder," "lets the nose drop." This report is produced on the next instruction flight. Thus, not only is it known what phases of training are satisfactorily completed, but also the faults in those that are not.

In order for such a system to work satisfactorily, it is necessary for each instructor to instruct in precisely the same way. In the case of Brooklands, this has been achieved, the "patter" being standardised completely.

This method has proved equally economical of the instructor's time and the pupil's money, and will doubtless be of interest as the result of the accumulated experience of a first-class flying school.

It is significant that during the whole flying season, no pupil has even bent an undercarriage at Brooklands.

During September the total flying hours of the school amounted to 250. This has been a very busy month for the staff and school machines, quite a number of pupils having

passed all tests for their "A" Licences. New pupils still continue to join, some of whom propose going through for their "B" Licences, which will keep the school busy through the winter months.

Arrangements are being made for a series of any evening lectures on maintenance of machines, navigation, etc., to be held during the next few months. Further details will be published shortly. A new Lecture Room is being erected, with heating, for the purpose of holding these lectures in some degree of comfort during the cold weather.

**A NEW ZEALAND INNOVATION.**—The executive of the Marlborough Aero Club has given full approval to proposals by a sub-committee which has been investigating the possibility of devising a scheme under which suitable youths who would not otherwise be likely to learn to fly may be instructed and enabled to secure their "A" pilot licences free of charge. It is believed that it is the first system to be devised among civil aviation organisations to provide free tuition and the club is adopting it as a genuine contribution toward the cause of developing what is known as the "air sense" in the furtherance of the interests of civil aviation.

The scheme involves an initial appropriation from the club's funds of £200, which will be augmented from time to time. It is estimated that the actual cost of teaching each lad to fly will be about £40, so that the initial fund will provide for the tuition of five. It is possible that certain local institutions may assist in the scheme. The suggestion has been made to the Director of Air Services that in continuation of the club's efforts the department should annually select the best of its scholarship pupils for a cadetship with the New Zealand Air Force or accord him a recommendation for a short service commission with the Royal Air Force in England.

Candidates for the scholarships must be nominated by a member of the club or by the principal of Marlborough College, and first preference will be given to near relatives of members and sons of soldiers and sailors who lost their lives in or as a result of the war. The age limit is between 17 and 25 years and the minimum educational requirement is a Standard VI. pass. Candidates will be required to undergo a preliminary medical examination and a general knowledge and intelligence test.



A further selection of small cabin aircraft. Left, the Breda (Gipsy I); right, the Hendy 302 (Hermes). (FLIGHT Photos.)

**L**ANCASHIRE Aero Club. The Rodman Challenge Trophy.—The first Senior Pilots' Landing Competition for this Trophy and for the helmet presented by Captain Lamplugh took place on Saturday, September 27. In this event the pilot is presumed to suffer complete engine failure while flying down-wind at 1,000 ft. directly over the only possible forced landing field. This field is only 500 ft. in length and 90 ft. in width, flanked by trees but with an apparently clear approach. While approaching, however, the pilot finds that a row of telegraph wires runs across the edge of the field and he is compelled to glide in between the telegraph wires and the hedge. These conditions were reproduced by two white tapes, one 20 ft. above the ground and the other 5 ft. above the ground and immediately below it, the tapes being suspended between poles 90 ft. apart and the field being marked out by rows of flags. The competition was open to all approved pilot members with over 100 hours' solo experience, including Service and Country members. The judges were Flt.-Lts. Comper and Massey and Mr. D. E. Hall, Chief Instructor to the Club. A maximum of ten points each were awarded for style of approach, style of landing, and distance before coming to rest.

The contest was very successful and the majority of the competitors experienced no difficulty in getting in between the two tapes, although the maximum clearance was only 2½ ft. above and below. It was interesting to note, however, that the effect of the two tapes seemed to be that most pilots came in rather too fast in order to make sure of having plenty of control, with the result that they could not pull up before the end of the field. Pilots were allowed to use their own aircraft or any of the club aircraft at choice and the leading returns were as follows:—1st, Mr. A. Goodfellow, 29 points, Avian (Cirrus); 2nd, Mr. B. A. G. Meads, 23 points, Avian (Cirrus); 3rd, Mr. J. C. Cantrill, 19 points, Avian (Gipsy); 4th, Mr. P. T. Eckersley, 19 points, Avian (Hermes).

On the same afternoon the Pemberton Trophy Landing Competition for the Junior Pilots was also held, the conditions being the same except that the telegraph wires were removed, the field was made larger and an instructor was carried in the front seat. Owing to the strong and gusty wind competitors experienced great difficulty in judging their approaches, and, in fact, the only competitor to get safely into the field was the holder, Mr. J. C. Garner, who thus retains the trophy for another three months.

Among the distinguished spectators was Wing-Commander Kingsford-Smith, now a member of the Club, who came to say goodbye before starting out on his flight to Australia on the Sports Avian (Hermes). Incidentally, before leaving he gave a very handsome cheque to the Club, an entirely unsolicited and unexpected act which was greatly appreciated.

**THE KATANGA AERO Club.**—Mr. Heenan, Governor-General of Katanga, is the Honorary President of the new aero club. The objects of the club are to encourage aviation, to form a school of pilotage, and to maintain the Elisabethville-Leopoldville line. The club has made an application to become affiliated to the Royal Aero Club of Belgium.

**NIGHT FLYING at Brooklands.**—On Saturday, September 22, a demonstration of night flying was given at Brooklands, and many passengers were taken up. It has been decided that another demonstration shall be given on October 4, when the British Racing Drivers' Club are holding their 500 miles' race.

**THE CORNWALL AVIATION CO, LTD.** report that they have been given the opportunity of moving their present headquarters to Bristol Airport, operating a taxi service therefrom, servicing of aircraft and practically the sole joy-riding rights of the aerodrome.

## THE AIR AS AN AID TO BUSINESS

By Mr. E. C. BROWN

(Mr. E. C. Brown is one of the many ex-R.A.F. officers who have returned to commercial life within the past few years, and are applying the knowledge they gained of the air and its uses to their business. He is at present aviation manager for W. B. Dick and Co., Ltd., the well-known manufacturers of Ilo brand oils. This firm has long supplied oil of suitable quality for aero engines, and now Mr. Brown has induced them to start an aviation department of their own for marketing this product of their refineries. In the furtherance of this work he uses a Coupé Gipsy Moth, and is already a well-known figure in aviation circles.)

**T**HE unprecedented increase in all branches of aviation, during the past twelve months, must have proved beyond question, to even the most sceptical-minded, that the aeroplane, with all its potentialities, has come to stay.

Our climatic conditions are gradually being neutralised at any rate in the case of the Trans-Channel Air Liners—by means of directional wireless; existing Flying Clubs are increasing their activities and new Clubs are being formed, despite the reduction of the Air Ministry subsidy; competition amongst manufacturers is becoming keener, by virtue of the increasing demand, not only for their standard products, but for varying types to meet special conditions.

The Air Ministry, the private owner, the sportsman and the pleasure passenger are already catered for, but the backbone of the country—the business man—is only just beginning to realise the possibilities attending this mode of transport.

In 1910, an official report from the War Office read: "We do not see any possibility of ever using aircraft for war purposes." This lack of foresight needs no further comment, but it is to be wondered how many large business houses have had, and still have, the same thoughts concerning the use of aircraft, as applied to themselves.

These sentiments are probably largely due to the fact that, aviation still being in its infancy, the majority of business



Mr. Brown flying his Chairman's Coupé Moth (Gipsy I). (FLIGHT Photo.)

men are sublimely ignorant on all matters pertaining thereto. The sound of an aeroplane engine passing overhead still draws their eyes, and they realise that flying is an accomplished fact, but how many of them stop to think just *why* that aeroplane passed overhead. Was it the 12 o'clock liner bound for Paris, with twenty passengers, luggage and freight? Was it an Air Force interceptor fighting machine hurtling through the air at 180 miles an hour, a living demonstration of mechanical efficiency, or was it merely a private owner, complete with bag of clubs, bound for a golf course a hundred miles away, where he will play his round and then return to his own home for dinner? The average business man does not know, and he doesn't care. His horizon is bounded by

the 8.15 train or the No. 32 'bus.

In these days, the essence of successful business is Service, and service is synonymous with Speed. Speed in manufacture, speed in delivery, speed in securing contracts, answering inquiries, settling complaints and rendering assistance.

The first has been accomplished by means of mass-production, but what of the remainder? Trains, congested thoroughfares and a dilatory post successfully neutralise the efforts of the manufacturers to give the service they desire.

If progress is to be unhampered, therefore, it is the trans-



port problem which has to be tackled—not only the transport of goods, but the transport of personnel. A definite remedy is now in their hands. Flying is no longer the precarious enterprise of the last decade, surrounded with the glamour of the incomprehensible. The experimental stages have long been passed, and energies are now being devoted—as in every other form of established engineering product—to improvement in design and efficiency.

It is appreciated that a great deal of prejudice has still to be overcome, even amongst those who are open-minded on the subject. The rising generation will take to the air, as our ancestors took to the sea, but it is for the present generation to show them the way. Old-fashioned unprogressive methods and die-hard conservatism can be indulged in by those who can afford them, but a successful business can no longer be run on these lines.

A predominant thought is still in existence, to the effect that flying is dangerous, and this thought is unfortunately fostered by the daily Press, who pander to the morbid taste of the public for details of accidents. Every mishap is faithfully published, with gruesome details and expressive photographs, but no mention is ever made of the millions of miles which have been and are being flown in safety.

In these days, no one hesitates to drive in a car, but with the present state of traffic congestion and the indiscriminate manner in which driving licences are issued, motoring is infinitely more dangerous than flying.

No one is permitted to fly without a certificate proving his physical fitness and ability to do so, and no machine is allowed to be flown unless it carries a certificate of airworthiness. Compare this then, with the motoring laws.

Let it be definitely understood that aeroplane engines have reached a far higher state of efficiency than car engines, bearing in mind the comparative strains imposed; that air travel is at least twice as fast as train and four times as fast as motor travel, and that the slight extra cost, is a great deal more than compensated for by the amount of time saved.

Once these facts are fully appreciated by business men, and the spectres of uncertainty and danger finally eradicated from their minds, they will realise that a new and potent force is in their hands, which can be harnessed into a multitude of services.

Certain of the more enterprising and far-seeing of the City Corporations, realising that the time is shortly approaching when journeys by air will be almost as common as those by road or rail, have purchased sites within easy access of the town, and have constructed aerodromes. The initial outlay on their part has been heavy, and the present returns small, but those who are first in the field will reap the first ultimate benefit.

They think—and very rightly—that once they have provided the necessary accommodation, business will come, whilst those who are waiting for the demand to be created before acting, will be passed by.

It is easy to foresee that, in the very near future, aerodrome sites will be at a premium, whilst those already in existence will be worth many times the original purchase price. As air transport becomes more universal, those concerns taking advantage of it will need offices or warehouses near the aerodrome, and the piece of ground now lying outside the city will become a new centre of industry.

Let us now analyse the various ways in which the aeroplane can be made to serve the average business house. There are two chief factors in ordinary business which

necessitate the use of transport—delivery of goods, and representation. The time has not yet arrived in this country, though it is fast arriving, when heavy or cumbersome freight can be transported economically by air, but this medium can be used with the greatest advantage where light goods are involved, and quick deliveries are of great importance.

Personal representation, however, is an entirely different matter, being the fundamental basis of all business, and the uses to which the aeroplane can be put in this respect are manifold. It is not suggested that commercial representatives as a whole, should conduct their business by air, because in the majority of instances this would be manifestly impossible. The saving of time, however, being the greatest factor, its facilities in this respect would be utilised with the greatest advantage by company directors, district managers, technical advisers, consulting engineers and such men, whose time means money.

Even in a country such as this, where distances are comparatively small, many hours of travel could be converted into hours of profitable business, by use of the air instead of rail and road, but where journeys on the Continent are involved these advantages become even more apparent, and *days*, not merely hours, are then saved.

Now, with regard to the piloting of machines used for commercial purposes. Quite a number of business men who have learnt to fly, primarily for pleasure, have since realised the advantages obtained by air travel, and now use their machines—piloted by themselves—to keep their widespread business appointments. Others, having no inclination to pilot themselves, but realising the necessity of advancing with the times, employ their own pilots, and conduct all their own business by air.

This gradual realisation on the part of the more progressive business houses has created the demand for special-charter machines and air taxis. Several firms throughout the country cater almost exclusively for this class of trade, and a variety of machines, ranging from open two-seaters to cabin machines holding six passengers, are always available at a moment's notice.

One enterprising firm of aircraft agents, as a side-line to their business and an incentive to their sales, has a scheme on hand, whereby a business man can hire a machine from them, together with an instructor, so that whilst flying to keep his appointments he can be receiving instruction, and when practical demonstration has convinced him of the advantages he is obtaining, he can purchase a similar machine at a reduced figure.

This present year has seen enormous strides in civil aviation in all its branches, and the rate of its progress will continue to increase. Great Britain is slowly becoming "air-minded"; existing prejudice is being gradually overcome and universal interest is at last becoming awakened.

Next year, almost every town of importance will be having its Air Pageant, so let the business man tear himself away from the golf course for that one day in the year. It is his duty to himself and to his firm to gain a personal insight into this newest and most progressive industry. Machines of every type will be demonstrated and their capabilities explained. He will be able to see for himself; he will be able to choose for himself, and his inquiries will be heartily welcomed.

It is impossible to arrest progress; it is fatally short-sighted to ignore it. The railways are crowded, the roads are congested, and we *must* take to the air.



Miss Amy Johnson's new Puss-Moth (Gipsy III) presented to her by the De Havilland Aircraft Co. (FLIGHT Photo.)



## A FLIGHT IN THE SHORT "VALETTA"

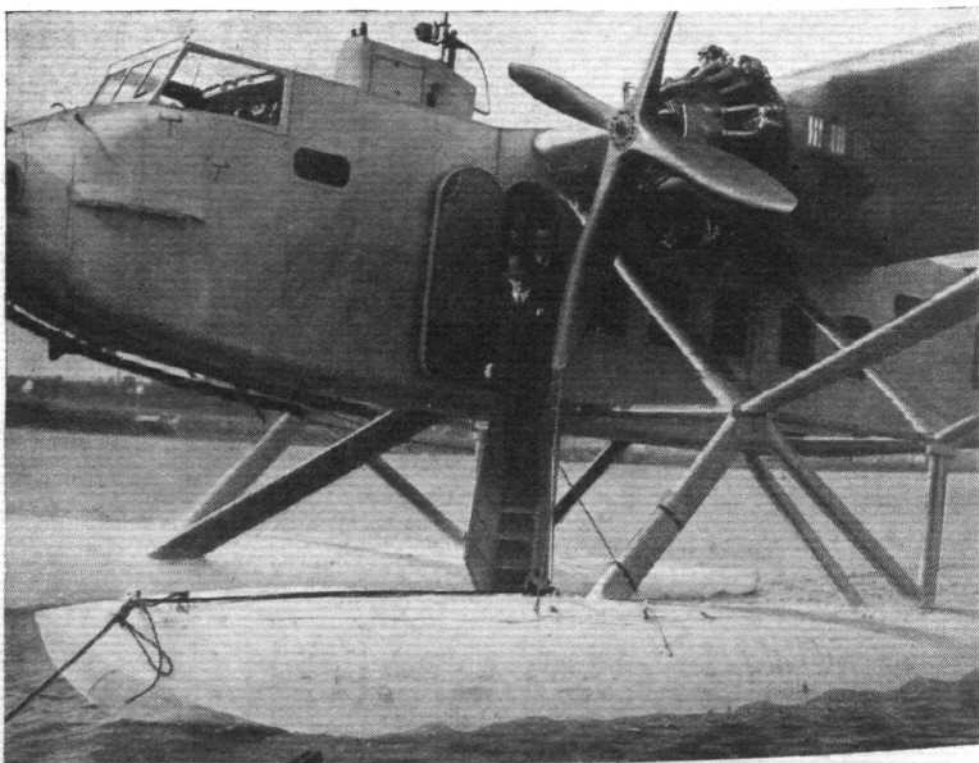
ON a dull rainy day there is little to choose, for sheer dreariness, between an aerodrome and a seaplane station. Perhaps the latter is the worse, for it is a disconsolate sight to watch rain falling on water and making it look wetter than ever. But when the sun is shining there are few more pleasant ways of spending an afternoon than watching seaplanes at work; and of seaplane stations few have such attractive surroundings as the works of Short Bros., Ltd., on the Medway. On Wednesday, September 24, the weather was kind, though the morning had been misty, and so the large party which travelled to Rochester to watch a trial flight by the new monoplane float seaplane "Valetta" were really in luck's way, and spent a very delightful afternoon. A full description of the "Valetta" has already appeared in *FLIGHT* in the issue of July 25, and so it is not necessary to go over that ground again. No technical description, however, was necessary to make clear the beauty and grace of the huge monoplane as she rode at her moorings. Beauty in a machine is a word difficult to define.

The "Valetta" undoubtedly possesses beauty of line, which is certainly more commonly achieved in a monoplane than in a biplane. This graceful aspect to some extent takes off the effect of her size, and makes it hard to realise that one is looking on what is believed to be the largest float-plane in the world.

The "Valetta" has seats for 16 passengers, but for the trial trip on Wednesday, the number was limited to 12, with a crew of three. Wonderful things the floats are, almost as long as a Varsity racing eight, and infinitely more capacious! One stepped on to the port float with as much confidence as if it were the deck of a Channel steamer, and with far fewer qualms. The fairing of a strut was opened to disclose a set of steps leading up into the fuselage—I almost wrote the hull—and a rope was led down to serve as a handrail. It was a calm day, with but little wind, though that was blowing across the river, and the floats paid not the slightest attention to the ripple on the surface. We clambered into the fuselage and looked with interest at the interior. We might have been inside the "Calcutta." The size and general arrangements are very much the same. The seats, upholstered in grey corduroy, are arranged three abreast, two on the starboard side and one on the port side, with the gangway between. There

is plenty of head room for a six-foot man, with a hat on. The hat was speedily placed on the luggage rack, and we settled down into the luxurious comfort of the seats. To the rear of the cabin was plenty of room for luggage. Forward of it was the wireless compartment with its bewildering array of wires and gadgets. The cockpit up in the nose, with its two seats, looked spacious and comfortable; and, with glass all round it, it must be an exceptionally pleasant place in which to spend a sunny afternoon. The top can be slid open if the pilot wants a breath of fresh air. A view forward is what a passenger rarely gets in either a train or an aircraft, but I remember how keenly I enjoyed the time I was allowed to spend in the pilot's cockpit of the first "Calcutta" good old "V G" on her trial flight, despite the rush of the air.

Lankester Parker took his place and the two outboard "Jupiters" were started. Then the moorings were cast off, and the seaplane slowly taxied forward while the central "Jupiter" was got into action. Parker turned round several times while he warmed up his engines, and it was really astonishing to note the smallness of the circles in



THE SHORT "VALETTA": The cabin is reached via steps housed in the fairing of the front port strut of the float undercarriage. (FLIGHT Photo.)



which this wide-tracked seaplane turned. She is exceptionally manoeuvrable on the water. When the engines were warm enough, she was headed into the most favourable direction, considering that the wind was across the river, and the engines were opened up. I could not time the take-off, for so smoothly did she run that I was unaware of the moment when she came unstuck, and I happened to have my eyes on my watch at that moment. But I did notice, and was deeply impressed by, the absolute cleanness of the floats as she hydroplanes. The four-bladed props. would have been clear of a considerable amount of spray, but there was no spray at all. The bow-wave of each float flowed smoothly away without any tendency to throw up over the machine.

Then we began to climb, and could examine the contours of one of the most interesting parts of Kent. The gorge of the Medway as it runs between two masses of Downs is a remarkable sight, nearly unique, I imagine, in English scenery. One must fly over it to get the proper effect. That day the visibility was unusually good. Parker turned down the Medway, flew over the bridge (a familiar irritation to the motorist), over Rochester town, Chatham and the docks, and on to the open Thames estuary. The altimeter in the cabin had struck work, and in this big machine I could not guess our height. We seemed to be extraordinarily low, though afterwards I learnt it was 2,000. Parker said that he himself had the same sensation of lowness in these large machines, and at first felt almost afraid to fly over the town for fear of hitting it.

The stretch of mud flats and silt land on each bank of the Medway as it winds down between the islands of Sheppey and Grain to the open Thames, is another extraordinary feature of English scenery which can never be properly grasped and appreciated except from the air. Dozens of fields were under water, with the tops of their boundary banks just showing above the flood. One deserted house stood out in the middle of this watery waste, ever so far from anywhere, with its ground floor under water. Who could have thought of building in such a spot, and what a dreadful place it must have been to live in! We felt glad that it was no longer habitable, though possibly someone

grieved for a lost home when it had to be quitted. The ways of marsh dwellers are strange, though perhaps they think it is flying folk who are the real curiosity.

When we had turned and got back to the seaplane works, Parker put the nose of the "Valetta" down, and did a dive and a zoom past the stage where the photographers were waiting. The needle on the air speed indicator went up to 120, though, of course, the machine was nothing like full out. We noticed that the climb was good and smooth. This was repeated from the other direction, and then we shot off once more over Rochester and turned. With regret we realised that Parker was going to land. All good things must come to an end. We had been up for some 20 minutes, but what a lot we had seen in that time! Only too often the view from the air brings out the dull sameness of the land

below. What we had been seeing was probably very unattractive to one down among it, but from the air it was fascinating. And water, too, on any sort of a decent day is the most beautiful thing of all to see from up above.

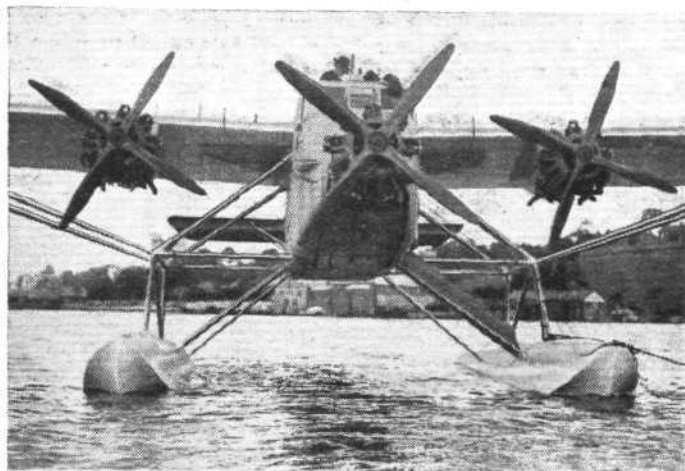
Parker is a master at landing seaplanes, whether of the boat or the float variety. This landing could not have been bettered. The floats just slipped imperceptibly into the water without the least suspicion of a jar, ran along on the steps for a while, and then sank down and pulled up. As we disembarked we began to reflect that in the cabin we had been able to talk without effort, and had felt practically no vibration or other discomfort. The "Valetta" can

receive full marks from the passenger's point of view.

What place this float-plane will take in commercial transport remains to be seen. It is doubtful if she will be as seaworthy as the "Calcutta." But her speed and general performance, combined with her comfort, should give her a future on the sections of great airways which follow large rivers or lakes. We shall certainly follow her future with the keenest interest.

Just as the sun was nearly setting, the first of the three "Calcuttas" ordered for the Royal Air Force was taken up for her first trial flight, and behaved as the Calcutta type has already proved that it is able to behave. These boats are destined for No. 203 (F.B.) Squadron at Basra.

F. A. DE V. R.



**LATERAL STABILITY :** The floats of the "Valetta" are set wide apart and should make the machine very steady on fairly calm water. (FLIGHT Photo.)



**AT MOORINGS :** The Short "Valetta" (3 Bristol "Jupiter" engines) on the Medway outside the Rochester Works of Short Brothers. (Note the servo-rudder.) (FLIGHT Photo.)

# AIRISMS FROM THE FOUR WINDS

## Capt. Matthews Crashes

CAPT. F. R. MATTHEWS, who left Croydon on September 16 in a "Puss Moth," on an attempt to beat Bert Hinkler's record flight to Australia, has met with misfortune on the eleventh day of his flight—when still one day ahead of Hinkler. He left Calcutta on September 25, and reached Rangoon in the evening, having refuelled at Akyab. Proceeding next morning for Bangkok, he encountered such bad weather he was obliged to return to Rangoon, arriving there shortly before noon. Two hours later he started off again, and no further news of him was received until September 28. It was then reported that he had to make a forced landing in a rice field at Banmee, 100 miles north of Bangkok. The machine was damaged, but he was uninjured. The Siamese Minister for War has sent mechanics from Muang Don to help with the repairs, but it is impossible for Capt. Matthews to beat the record now.

## Kenya Fliers also Crash

MISFORTUNE has also overtaken Mr. Kenneth Shenstone and Mr. Pat Fairbairn, who left Croydon in a "Moth" on September 17 for Kenya. They reached Cairo on September 30, and crashed on landing, but were unhurt.

## Mrs. Bruce Starts

ON September 25 the Hon. Mrs. Victor Bruce set out from Heston Aerodrome on her "Mystery" flight towards the East. She was flying a Blackburn "Bluebird" fitted with a Gipsy II engine, and equipped with a Graham Amplion automatic wireless set. It is understood that Mrs. Bruce hoped, during her flight to Tokio, to beat Miss Amy Johnson's time for the trip to Karachi. She arrived at Munich in the afternoon, but fog prevented her proceeding to Budapest as originally intended. Vienna was reached early next afternoon, and here she was again held up, but got away on September 27 for Belgrade. She reached Constantinople on September 28, but after leaving next day for Aleppo she made a forced landing in the mountains near Eski-Shehr, about 100 miles from Constantinople.

## Mrs. Spencer Cleaver to Fly Across America

MRS. SPENCER CLEAVER, the daughter of Mr. H. M. Pollock, Minister of Finance for Northern Ireland, sailed in the *Berengaria* on September 27 for New York, whence she hopes to fly across America to Hollywood in her Gipsy Moth, which she is taking with her.

## Wing-Com. Kingsford Smith

OWING to an attack of influenza Wing-Com. Kingsford Smith has been forced to postpone his proposed flight to Australia in his Avro "Avian," *Southern Cross Jnr.*

## The Master of Sempill

COL. THE MASTER OF SEMPILL concluded his Scandinavian tour on September 25, when he flew his "Puss Moth" seaplane from Aberdeen to the Welsh Harp, Hendon, non-stop—a distance of about 500 miles in 4 hr. 50 min.

## The R.A.F. Baltic Cruise

THE four R.A.F. Supermarine "Southampton" flying boats of No. 201 Squadron, which are carrying out a cruise in the Baltic, arrived at Gothenburg on September 27. Group-Capt. Nansen, commanding the flight, laid a wreath on the coffins of Andree and his companions, which had just arrived there in the gunboat *Svensksund*. The following day the "Southamptons" flew to Oslo.

## Kingston and an Airport

REPLYING to an inquiry from the Air Ministry if they had considered the establishment of a municipal aerodrome, Kingston Council have stated that as the area of the borough is practically built over, there is no land available for such a purpose.

## "Graf Zeppelin's" Baltic Cruise

LAST week the German airship *Graf Zeppelin* left Berlin on a cruise to the Baltic, and arrived, by way of Revel, over Helsingfors, on September 24. Owing to the strong wind, however, she was unable to land, and ten passengers who had booked a passage to Berlin were unable to embark. The *Graf Zeppelin* proceeded to Stockholm.

## Tenders for Air Survey of Buenos Aires

BUENOS AIRES has called for tenders for carrying out an air survey of that city, and the Aircraft Operating Co.—which has already carried out an air survey of Rio de Janeiro—is one of the firms who have been invited to tender.

## No U.S. Schneider Entry?

It is reported from Washington that Rear-Admiral Moffett has stated that the United States do not intend to enter a seaplane in next year's Schneider Trophy race.

## Russian Zeppelins

THE Riga correspondent of the *Morning Post* states that the visit of the German airship *Graf Zeppelin* to Moscow a week ago has already resulted in a campaign in the U.S.S.R. to raise sufficient funds to construct Soviet Zeppelins. The construction of Zeppelins has been declared part of the Five-Year Plan, and deductions from monthly wages for the fund are obligatory nearly everywhere. According to private information, the Zeppelins will be constructed either in Germany or by German engineers in the U.S.S.R.

## Russian Pilot Missing

THE Russian pilot Chuknovsky, who took part in the discovery of the *Italia* Polar expedition, has been missing since he started on a flight on September 24 from Dickson Harbour, Siberia, to Krasnoyarsk (1,300 miles away).

## Record Inverted Flight?

WHAT is claimed to be a record inverted flight has been accomplished by the chief instructor of the Münster (Westphalia) Flying School, who flew upside down for 46 min. 33 sec.

## Costes' "Question Mark"

ACCORDING to the *Morning Post* Paris correspondent, M. Francois Coty, the millionaire scent manufacturer and proprietor of "Figaro" and "L'Ami du Peuple," has published an article describing how he undertook to build the *Question Mark* for the transatlantic flight. M. Coty's three conditions were that secrecy should be observed until the attempt could be made, that Costes should help him to get the finest aeroplane possible and the best motor built, and that the attempt should only be made in completely favourable weather conditions. Coty spent about £10,000 on building and equipping the *Question Mark*.

## Foreign Officers in the R.A.F.

THE following foreign officers have been attached to the R.A.F., and took up their duties at the Central Flying School (Wittering) on September 30:—Capt. A. Dzenitis (Latvia) and W/O. Van Damme (Belgian Air Corps).

## An Egyptian Air Corps

THE Egyptian Minister for war and the Inspector-General of the Egyptian Army, have concluded arrangements for the formation of an Egyptian Air Corps, under British supervision. For the time being, this will consist of five machines; five Egyptians are attached to the R.A.F. at Abu Suwir, and three are receiving instruction in England.

## R.A.F. 'Plane Markings

A CHANGE has been made in the identification markings on the rudders of R.A.F. aircraft. Hitherto these have been coloured red, white and blue, in vertical stripes, the blue being next the stern post—or forward. These have now been reversed, as the original arrangement was the same as that employed on French machines. The concentric tricolour rings remain as before—i.e., blue outer ring and red bull's-eye.

## Edison and the Autogiro

THE Cierva Autogiro Co. tells us of a very interesting happening which took place at the aerodrome of their Associate Company in America, the Pitcairn-Cierva Autogiro Company of America, Inc., of Land Title Building, Philadelphia. On September 23, Thomas Edison arrived unexpectedly at the aerodrome, and requested a demonstration and flight in the latest type of Autogiro there, in which his interest had been aroused through certain articles in the press. He was immensely impressed, and expressed his great belief that this invention would undoubtedly revolutionise world flying. On climbing out of the cockpit of the machine, he said, "The Autogiro is the answer," and he also expressed his intention of evolving a scheme whereby he could give the Autogiro the benefit of his support.

## A Swedish "Caterpillar"

LIEUT. A. J. HENRIKSSON, an officer in the Swedish Royal Air Force, has become a member of the International Caterpillar Club by saving his life with an Irvin Air Chute on September 12, 1930. Lieut. Henriksson was flying a single-seater machine when, owing to rudder trouble, the machine went out of control and nose-dived. At a few hundred feet above the ground Lieut. Henriksson succeeded in climbing out of the machine and opening his parachute, with which he landed without injury.

## Rolls-Royce Engines for America

THREE Rolls-Royce 825-h.p. "H"-type aero engines have been ordered by the U.S. Government. It was this type of engine, it will be remembered, that was fitted in the Supermarine Schneider Trophy machines of last year.



## CROYDON WEEKLY NOTES

THE Segrave "Meteor" arrived at Croydon on Friday, September 26. This was her first visit to us, and the clean, fast-looking lines caused very favourable comments. Flt.-Lt. Armour was demonstrating the machine, and she certainly appeared to have a fine turn of speed—as much as 150 m.p.h. all out, we were told. A machine of this kind deserves the attention of those responsible for our air mails. But perhaps it travels too fast for their aged eyesight to "snap" it. The maintenance and running costs must be small in relation to the ton-miles per day.

The following morning the Meteor left Croydon for Heston. Flt.-Lt. Armour is taking her to Rome for a special demonstration before His Excellency Signor Balbo, the Italian Air Minister.

A most enthusiastic believer in the Meteor is Mr. Cyril Weiss, who has recently joined the Aircraft Investment Corporation.

Owing to the recent gales and bad weather, many machines have had to put into Lympne Aerodrome. It is very satisfying to pilots to know that such a place is available for them, where they can get the most excellent attention. The ever-popular Mr. S. M. Jupe has been there since the start of civil aviation, and nothing is too much trouble either for him or his perfectly trained staff.

Nor is the bodily attention at the near-by White Hart Hotel, Hythe, less satisfying. The host and hostess, Mr. and Mrs. Somerville, have made it a real Pilots' Home, and most of the famous ones of that profession have stayed there at one time or another. The visitors' book is without price, and all hero-worshipping youngsters should go there to see the autographs of those who in the past have lived—and sometimes died—to make flying safe for them. In years to come the White Hart will have all the glamour which is now attached to many an old posting house on the Great North Road.

The Plymouth meeting last week was well supported by Croydon folk and proved a most cheery affair, especially in the evening. Mr. C. Bernard Wilson was there in a Hermes-Avian, whilst his Desoutter, G-AAPY, was being used for joy-riding in the hands of "Cap" Muir. An unfortunate girl hurrying to mount this machine walked into the airscrew,

but received no more than a broken collar-bone. The first rumours of the affair were, of course, more gruesome. Thorn, of the A.D.C., was there too, and more joy-riding was being done by "Timber" Woods, of Surrey Flying Services, in an Avro. The Desoutter Mk. II, turned up after lunch, bringing Messrs. Jeffs and Anonymous, a very well-known pilot, the last of the Croydon crowd to arrive. The following day Bernard Wilson did a very useful job in "air-ducatng" the school-children of Plymouth who were gathered on the Hoe. Whilst he performed various evolutions to a pre-arranged programme, an announcer broadcast a running commentary through loud speakers. An obvious development on the lines of the R.A.F. Display would be to make the pilot his own announcer by means of wireless telephony from the actual machine. Bernard Wilson is finding his Desoutter a most useful money-maker, for on one day it carries its 3 cwt. or more of freight, on another it takes up joy-riders by the score, and on a third he is away across Europe on some fast courier work.

We understand from Mr. Charles Allen that the Henderson Aviation Bureau is now undertaking school work in its Gipsy Moth, leaving the Puss Moth free for private charter.

An unfamiliar outline in the distance last Wednesday proved on arrival to be a new Messerschmitt freight carrier which the Deutsche Luft Hansa have just put into their service. Though we have seen machines of this type here before they have not up to the present been regular visitors. But Herr Jahn tells us that they are now being developed for the English Section of the D.L.H. routes and will often be seen at Croydon. The Messerschmitt is one of the most "eye-able" of German machines and its glider-like profile indicates efficiency and speed.

We shall soon be missing the cheery and familiar presence of M. Paul Grosfils who is leaving the Air Union at Croydon and returning to Paris. Everyone regrets, too, the departure of M. M. Delage and Sautereau, who are also leaving the Air Union to take up air mail work in South America.

The bad weather, the finishing of holidays, and the passing of the tail end of America's annual migration have all combined to pull down this last week's passenger figures to 900 and the freight to 59 tons.

M. L.

## CORRESPONDENCE

[The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.]

## NIGHT FLYING AT HESTON

[2337] In view of the favourable and enthusiastic way in which the aeronautical press has commented on our recent experiment in night-flying tuition, we should be ungrateful were we not to request you to permit us publicly through your columns to pay our tribute to the manufacturers of those night-flying accessories with which our machines and aerodrome were equipped.

It is already well known that the flood lighting was arranged by Messrs. Chance Bros. & Co., Ltd., the lighthouse manufacturers of Birmingham. The obstruction lights on the buildings and wireless masts, as also the lighting of the tarmac in front of the Club House, were carried out by Messrs. C. A. Ramsey and Sons, 42, Richmond Road, Staines.

The navigation lights were Vickers-Davis, lit by cells supplied by the Chloride Electrical Storage Co., Ltd. Special propellers, black matt painted on the backs to prevent reflection of light, were the work of the Airscrew Co., Ltd., of Weybridge. Protection in the event of a forced landing outside the aerodrome was supplied by the Yorkshire Steel Co., Ltd., in the shape of Holt brackets and flares.

Each and all of these items of equipment gave unfailingly excellent service through the experiment.

AIRWORK, LTD.

Heston.

September 27, 1930.

## SERVICE

[2338] On the night of Sunday, August 3, my Moth G-AAEN was housed at Brussels. Some alterations or extensions were in process at the hangar there, and in connexion with these we found next morning that the gale had blown in a heavy glass-paned door on the spot to which, without our knowledge, the Moth had been moved after our departure the night before. The door fell on the starboard tailplane, but,

fortunately, the empennage was absolutely undamaged. The transmitted torsional stress on the fuselage, however, burst the convex plywood fuselage cover longitudinally for 3 ft. to 4 ft., and broke the rear bulkhead frame.

On Tuesday morning, Mons. Stampe of Stampe and Vertongen of Antwerp (Deurne Aerodrome), flew over with a rigger and spare wood, patched the Moth up temporarily, and escorted my pilot back to Antwerp. Before evening a complete repair had been carried out, and when the paint (correct colour) had dried the Moth was as good as ever. All material used was "certified airworthy," and the total charge for services was about £4.

This firm, the accredited Belgian Moth agents, is also taking up the question of liability, free of charge to me.

Of the actual assistance rendered, and the extraordinary moderation of the charge made for it, the bare facts speak for themselves. But even they would not alone attest the extreme sympathy, helpfulness, and goodwill displayed by M. Stampe and M. Vertongen at every stage in the proceedings. I am sure that to be informed of the existence and excellence of their establishment would be of service to British air visitors to Belgium generally, and I hope that others, in less pressing need than was ours, may benefit by our experience.

Thanks to this help a trip down the Rhine and over the Black Forest to Switzerland, which looked like being terminated after its first day, was enabled in not the best of weather to be completed as planned, with only a couple of days' delay. Of the seven or eight other Belgian, German, Swiss and French aerodromes we visited we found Basle quite exceptional in the kindness and helpfulness of its officials; this fact also it may be of service to other visitors to record.

F. A. SIMPSON

Trinity College,  
Cambridge.  
August 30, 1930.



# AIR TRANSPORT

## AIR COMMUNICATIONS

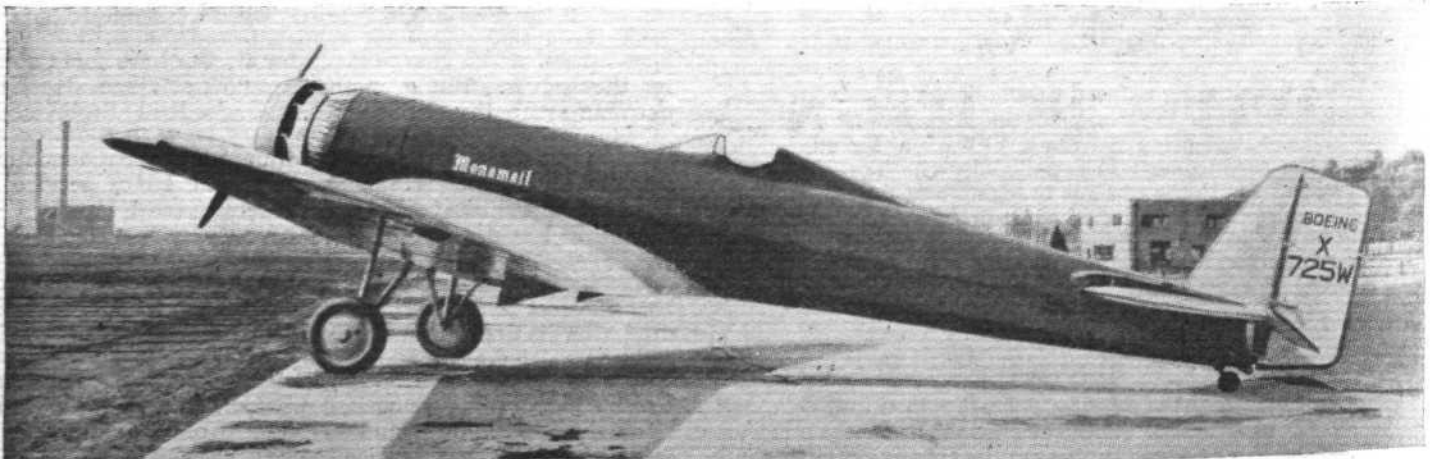
### Sir Samuel Hoare at the Bonar Law College

**S**IR SAMUEL HOARE delivered an address on "Air Communications" at the Bonar Law College, Ashridge, Herts, on Thursday, September 18. He said that the greatest revolution during the last generation was, not the coming of democracy, or even the great War, but the development of the internal-combustion engine. He asked whether we were making the best use of the new invention. So far as aircraft were concerned, he could not fully answer that question. Whilst we had made a notable advance with the use of the aeroplane, and, in a lesser degree with the airship, the result was still incomplete, and in some respects unsatisfactory. The International Convention of Aerial Navigation had failed to achieve all the results that had been hoped from it. While we and the French held that it ensured free passage of all civil air services over the territories of the signatories, the Italians held that a signatory was entitled to prohibit a foreign service. If instruments of great speed were to be held up at every frontier, their principal advantage would be destroyed. Still, he would not grant free air passage over the British Empire without reciprocity. Air lines should not be regarded as potential lines of military communication, or as a means of national propaganda. The further civil and military air lines and aircraft diverged, the better it would be for the peace of the world and the development of aviation as a whole. An air line should be what its name implied, a service for transporting passengers and freight from one distant point to another, and a service that should be made to support itself as soon as possible. At present, there was practically no civil air service in the world that was self-supporting. Our chief rivals were finding more than 70 per cent. of the cost of their services in Government subsidies. In England, the subsidies were due to taper out during the next seven or eight years, and they hoped that then no further subsidies would be needed. We should not pay too much attention to the actual mileage of the existing air lines. It was not the number of miles, so much as the kind of service that mattered. The more important points to notice were the character of the service and the economic type of the machines. From the point of view of the State, it was better to have a smaller mileage operated by economic machines carrying a substantial amount of passengers and freight than a larger mileage of machines that were carrying very little and getting no nearer the point at which they would be able to fly without State subsidies. Judged by these tests, we could claim that our air lines were nearer

to becoming self-supporting than any of the services in the United States, Germany, France, or Italy. During the next few months, several thousands of more miles would be added to our mileage by the opening of the first stages of the service to Capetown. The time was not far distant when we should have not only the most economical air lines in the world, but when the British Empire would have the biggest mileage as well.

#### The Airship Experiments

The future was much more important than the past and the present. Any successes that we had achieved must not make us complacent. The use of air transport was not what it was to-day, but what we could make of it in the years to come. He welcomed the fullest and freest discussion of air transport problems, and uttered a warning against treating those questions as articles of faith. Zealots on both sides did harm, the fanatics who believed that everything could be done in the air no less than the sceptics who declared that nothing could be done in the air. He had been glad to see the correspondence in *The Times* over the future of airships. Neither side had, at present, any right to dogmatise about airships. They were still in the experimental stage, and it would probably be some years before they passed out of the period of experiment into that of commercial development. All that we could say now was that the experiment was well worth trying and was progressing satisfactorily. "If, during the next few years we can succeed with the experiment and produce an instrument of transport that can ply between one end of the Empire and the other with a range of several thousand miles, we shall be giving the Empire a physical unity that it has never possessed before. Moreover, we shall be providing for ourselves an invaluable supplement to existing methods of communication. I particularly say 'supplement.' For I believe that the field of transport is a single and undivided field, and that the instruments to be used in it should be supplementary to each other, and not necessarily substitutes for each other. Aeroplanes and airships cannot, in my view, be regarded as substitutes for ships, trains, and motors. Each method of transport has its peculiar uses, and the one should dovetail into the other. Judged from this standpoint, aircraft can be of particular value to the Empire in providing supplementary services for the quicker and more expensive traffic that can never be catered for economically enough or quickly enough by ships or trains."



**THE BOEING "MONOMAIL":** One of the latest American machines which has been designed specially for air mail work. Some brief particulars of this monoplane are given on the next page.



### The Need for Special Mail Aeroplanes

Sir Samuel Hoare went on to say that there must be more imagination and more differentiation applied to our air services than had been the case in the past. In the period of experiment we were wise to go slow, but that period was passing, and he hoped to see development both swifter and more various than had been contemplated in the last few years. At present, British air lines were served by slow "omnibus" machines intended to carry both passengers and freight at a speed averaging less than 100 m.p.h. for journeys of not more than about 300 miles without the need for long stops and refuelling. The result was that the journey to India took a week. For ordinary passengers, this slow progress might not be unsatisfactory. It was very tiring for the ordinary passenger to fly for more than about 600 miles a day and, with the noise and sometimes bumps of the machine, he was probably glad to spend all his nights, and a couple of hours in the middle of the day, upon the ground. But there seemed to him no technical reason why mails should not be flown to India in from 30 to 40 hours. Machines in use by the R.A.F. flew 180 m.p.h., and there was no reason why types of that kind should not be used for a mail service. Their range would be 700 miles, and they would only come down to refuel with the quickest and most modern of refuelling appliances, to change their pilot and to dash on to their destination. Sir Samuel commented on



THE C.A.C. "FLEETSTER": Another American machine constructed specially for air mail work (see below).

the fact that we, almost alone of the great countries of the world, had no air mail stamps.

Meteorology and aeronautics, said Sir Samuel, ought to be regarded as the heavenly twins. The air must be charted like the sea. Our knowledge of its changes and its currents must be constantly amplified. At present there was no regular reporting of the weather in the Arctic and the Antarctic, and he was gratified that an expedition had gone to Greenland to study flying and weather conditions for some future air route between England and America via the Arctic. He wished the expedition every success.

## TWO NEW AMERICAN MAIL 'PLANES

AMERICAN aircraft designers have for some time past constructed machines specially to meet the requirements of air mail work, and in view of the remarks of Sir Samuel Hoare, quoted above, the illustrations, on this and the previous page, and following brief particulars of two recent American mail planes may be of interest.

The Boeing "Monomail," constructed by the Boeing Airplane Co., of Seattle, Wash., is an all-metal, internally braced, low wing monoplane, fitted with a 575-h.p. Pratt and Whitney Series B "Hornet" engine. Its outstanding features are: A retractable landing gear, an unusually heavy pay load, and high speed. With a pay load of 2,300 lb., it has accomplished a top speed of 158 m.p.h. and a cruising speed of 140 m.p.h.; this is with a fuel capacity of 135 gal., giving a range of action of  $4\frac{1}{2}$  hours or 600 miles. The gross

weight of the "Monomail" is 8,000 lb., and it is equipped for night flying. The framework, as well as the wing-and-body covering, is of duraluminium.

The "Fleetster" Model 20, constructed by the Consolidated Aircraft Corporation of Buffalo, N.Y., is a modification, specially for mail work, of the "Fleetster" model "17" passenger machine, and is a parasol monoplane, also powered with a Series B "Hornet" engine. The fuselage is of metal monocoque construction, while the wings are of wood, including the covering. With a pay load of 1,600 to 1,800 lb., (the gross weight being 5,900 lb.), the "Fleetster" has a top speed of 167 m.p.h. and a cruising speed of 143 m.p.h. (landing speed 60 m.p.h.); it has a cruising range of about 700 miles. These machines are used by the New York, Rio and Buenos Aires Line on its South American mail routes.

### Franco-Portuguese Air Agreement

ACCORDING to the *Morning Post*, Lisbon despatches state that the Portuguese Government has signed a contract with a company, known by its initials as the Sbela, granting it a monopoly of all the Portuguese air services, and in particular the privilege of regular landing at the Azores and

the Cape Verd Islands. The Sbela is understood to be constituted by a group of French air companies. It proposes shortly to organise air communications between France, Portugal, and the African possessions of the two countries, and to pave the way for Transatlantic air traffic via the Azores.



A BRITISH EFFORT: The Short "Valetta" three-engined (Bristol "Jupiter") seaplane, built to order of the Air Ministry for commercial air transport. An article on some flight tests with this machine appears elsewhere in this issue. (FLIGHT Photo.)

# IMPERIAL AIRWAYS, LTD.

## Sixth Ordinary General Meeting

**T**HE RT. HON. SIR ERIC GEDDES, G.C.B., G.B.E., presided at the sixth ordinary general meeting of Imperial Airways, Ltd., in Hotel Victoria, London, on Monday, September 29. In his speech, he first discussed the items of the accounts (an abstract of which appears on page 1104), pointing out that the value of the fleet of aircraft and engines had risen from £225,000 last year to £391,000, while the route mileage had risen from 2,093 to 6,399. The diminution in profit he accounted for by saying that the increased cost of operation through the growth of the fleet had coincided with the most severe world trade depression which he could remember. Still, satisfactory increases in traffic on both European and Indian sections were recorded.

The chairman had a good deal to say about the attitude of the Income Tax authorities. The rate of obsolescence agreed on with the Air Ministry was 25 per cent., but the Income Tax authorities did not recognise progressive obsolescence, and only allowed a wear-and-tear allowance of 20 per cent. on the depreciating value of the fleet, and would only allow the balance to be written off as and when each unit of the fleet was withdrawn from service. "The Air Ministry," said Sir Eric, "increases our subsidy on condition that we put by this tremendous obsolescence and so increase our costs. The Inland Revenue Department declines to allow the obsolescence in full as a legitimate cost and taxes us on it in part, as they say it ought to be a profit—one Government Department says it's a cost and another says it's a profit!"

### The England-India Service

The first year of the England-India service had worked with remarkable success and regularity, though it was disturbed last year, first, by mishaps to the flying boats, and, secondly, by the refusal of the Italian Government to continue permission for the service to be operated through Italy, except on terms which would have represented a serious financial loss. As a result, they had to alter the route "almost overnight" to one through Central Europe. The ground organisation on part of that route, however, had not yet reached a sufficiently advanced stage to enable flying right through during the winter months, and night travel by rail was, therefore, necessary. The route through the Balkans was an inconvenient arrangement, and Sir Eric said: "I am very glad that our difficulties with Italy have quite recently been overcome and the Italian Government has signified its willingness to permit your

service to operate again through Italy." The Indian mail service was popular. During the year 45½ tons of mail had been carried on that route. They were now carrying between 5 per cent. and 6 per cent. of the total letter mail between England and India. On that route 805 passengers had been carried, but they did not pretend at the moment to have luxurious accommodation for passengers, as they did not at that stage lay down expensive accommodation where there was inadequate security of tenure. The four-engined Handley Page landplanes and the four-engined Short flying boats should be delivered during the winter, with the result that there would be a uniform capacity of about three tons along the Indian route. The machines which were being replaced were being transferred to the African service for about a year, while new types were specially designed for that route.

### Air Mail Postage

Sir Eric considered that the Post Office charge for letters by air was too high. It adhered to the principle that the cost of air mails must be charged to the air mails themselves and not spread over the general charges of the Post Office. Most foreign Post Offices, notably the American, did not share those views, but held that air mail was part of ordinary communications and should be treated as such.

Sir Eric reiterated with all the forcefulness at his command that only by unified control could an international air service ever succeed. So far as they knew, the Government of India had not settled its policy, and so the company's plans for services east of India were in abeyance.

The African service should commence, as far as Kenya, early next year. Imperial Airways had just acquired the whole of the interests of the Cobham-Blackburn Air Lines. They had been able to lay down a more satisfactory and permanent ground organisation in Africa than had been possible on the Indian route, and he hoped that passenger traffic on the African route would be a valuable source of revenue.

The three months' experimental service from Liverpool, Manchester, and Birmingham to London had met with some measure of success, and he hoped that those enterprising municipalities would think it worth while to develop the experiment to a greater extent next year. The Southern Railway had also agreed that, should they wish to run air services, such services should be operated for them by Imperial Airways.

### Aeroplanes to Speed up Canadian Mails

THE Canadian Government are carrying out an experiment which, if successful, as is anticipated, will result in the saving of 24 hours in the time taken to transport mails between Montreal and London and vice versa. Mr. P. T. Coolican, Assistant Deputy-Postmaster-General, Ottawa, who arrived at Southampton in the Canadian Pacific liner *Empress of France* on September 24 to confer with officials of the British Post Office, said: "We have been flying mails to and from the 'Empress' steamers of the Canadian Pacific for two years now, but so far we have not used a terminal further afield than Rimouski. Now, however, commencing with the outward sailing of the *Empress of Australia* and the arrival of the *Empress of Scotland*, we are going to carry out experiments to see whether it is possible to put mail aboard and take mail from liners in the Strait of Belle Isle. We shall then be operating at a distance of 914 miles from Montreal, and if the experiments are successful we shall be able to effect a saving of fully 24 hours. The plan will be to fly land machines to and from Bradore Bay, and then place the mails aboard or take them off by means of a small boat. The plane we use is capable of carrying about 800 lb. of mails, and the value of the service will be that letters posted in Canada far later than is at present the case will be able to catch the ship. Similarly, mail bound for Canada will reach Montreal fully a day ahead of the time of its arrival if it was carried in the ship to Quebec and sent forward by rail to Montreal. This facility, even using Rimouski as the terminal, is tremendously useful to shippers, for, although the invoices are not completed until after the vessel has sailed, it is possible to catch the liner down the St. Lawrence, whereas formerly the invoices had to be forwarded on the next steamer." The first experiment was successfully accomplished on September 25, when about 500 lb. of mail was carried by air from Montreal and transferred to the outward bound *Empress of Australia*,

in the Strait of Belle Isle (N.S.). The mails included letters for the Canadian Ministers sailing in the *Empress of Australia* to attend the Imperial Conference, and also a letter of greeting from the Canadian to the British Postmaster-General. These mails reached Southampton on September 30, 48 hours ahead of schedule time.

### Australian National Airways, Ltd.

SATISFACTORY progress during the current year is announced by Australian National Airways—the company operated by Kingsford Smith and Ulm, serving Melbourne and Sydney. No flight has been delayed owing to defective machines and 1,131,600 miles have been flown over. The dividend for the half-year was at the rate of 8 per cent. per annum.

### Bournemouth's Aerodrome

SUPPORT for the movement towards the provision of an aerodrome at Bournemouth is forthcoming from the Bournemouth Chamber of Trade. At a recent meeting of the Executive Committee, at which the president (Mr. Robert H. Old) was in the chair, a resolution was passed expressing the opinion that in the best interests of the town an aerodrome should be provided. This expression is to be forwarded to the Town Clerk. The matter arose on a letter from the Civil Aviation Section of the London Chamber of Commerce, who stated they would appreciate the co-operation of the local Chamber in urging upon the local authority the importance of establishing an aerodrome at Bournemouth.

### Another American Air Transport Merger

NATIONAL AIR TRANSPORT has purchased the Stout Air Services, and will merge the activities of the two companies. National Air Transport operates air mail and express between New York, Chicago and Dallas. The Stout Air Services is the oldest air passenger company in the country, operating between Chicago and Detroit and Detroit and Cleveland. Both N.A.T. and Stout are divisions of the United Aircraft and Transport Corporation.





# GLIDING



**THE ASSOCIATION** of Northern Gliding Clubs.—The second meeting of the Northern Gliding Clubs was held in the clubroom of the Aircraft Club, at Harrogate, on Saturday, September 20, 1930, when the following were present:—Mr. N. Sharpe, *Bradford Gliding Club*; Mr. T. Buckton, *Halifax Gliding Club*; Mr. S. Jefferson, *Leeds Gliding Club*; Mr. B. S. Howarth, *Bolton Light Aeroplane and Gliding Club*; Mr. C. H. V. Ellis, *Aircraft Club, Harrogate*; Mr. R. F. L. Gosling, chairman (*pro tem.*); Mr. E. T. W. Addyman, hon. secretary (*pro tem.*); Mr. E. Craven, hon. treasurer (*pro tem.*); Mr. N. Sharpe deputised for the *Newcastle Mechanical Club*.

Mr. Crabtree, *Harrogate and Ilkley Clubs*, sent a most interesting letter from the Wasserkuppe in Germany.

Baines, Ltd., of James Street, Harrogate, very kindly brought a projector and showed the conference two films of the R.A.F. Pageant, and a most excellent one of Herr Kronfeld and Herr Maggersuppe soaring from Beamsley Beacon. A vote of thanks to Baines, Ltd., was heartily supported.

The detailed minutes of the previous meeting were read and signed. The ten resolutions passed at the previous meeting were not read as these had been circulated to the Northern clubs.

Letters were read from Mr. Crabtree regarding the arrangements at the Wasserkuppe. From Mr. Miller, of Newcastle, regarding details of organisation, and from a member who did not wish names to be mentioned, regarding lessons to be learnt from accidents. These letters all contained matter of great interest which will be of use. The question of obtaining a hangar and soaring site for several clubs was then discussed. It was mentioned that the *Aircraft Club, Harrogate*, later on would be willing to contribute £10 to this, subject to certain conditions, also that Mr. H. N. Sellers of the *Conningley Club* was obtaining prices and suggestions for hangars. Mr. Howarth mentioned that this was a question which could be dealt with later on, and that it would be better to get on with the amount of subscription and election of hon. treasurer. Mr. Gosling mentioned that a hangar and site would eventually be wanted, but it was a matter which required a good deal of preparatory work before a decision could be made. The following sites were suggested, Pennyghent, Ingleborough, Wharfedale and Greenhow, and members are asked to look round generally.

The question of a sailplane was also discussed, and this matter also was postponed, as it was thought that no one would be far enough advanced to fly one until well into next year.

The question of whether a member of one club could deputise for another at a meeting was raised and it was generally agreed that it should be allowed.

After considerable discussion it was unanimously agreed that such things as hangars, sailplanes, etc., should be provided out of specially subscribed funds, subscriptions to which might be obtained from various wealthy people and organisations, in addition to the sums put up by the clubs. The question of government subsidy was mentioned, but it was thought that it would entail more trouble than it was worth. It was felt that a low subscription was necessary for the sake of the smaller clubs. Eventually the following resolutions were passed:—

"That the subscription shall cover working expenses, and shall be one guinea per club." (Until March meeting.)

Proposed by Mr. Sharpe, seconded by Mr. Buckton "That Mr. E. Craven of 15, Kirkgate, Bradford, be hon. treasurer *pro tem.*"

**DATA, DRAWINGS.**—It was decided that each club should be requested to collect as much as it can and advise the hon. secretary what it has, so that inquiries can be sent to the particular club having the required data. Firms are required to send along useful information and particulars of materials of construction to the hon. secretary.

The question of the B.G.A. was then raised, and it was resolved "That we invite the secretary or other representative to our next meeting." The above was proposed by Mr. Addyman, Harrogate, and seconded by Mr. Howarth, Bolton.

A suggestion was made that the expenses of all representatives to the B.G.A. meetings be pooled and equally divided amongst the clubs represented, and the hon. secretary was asked to make a special note of this, as it might prove to be a way out of some of the difficulties. It was generally felt that one controlling body was advisable and from correspondence which Mr. Addyman has had with the B.G.A., he thought that they would be quite favourable to conferences of the clubs in say, the north, south, east and west, and possibly special regulations or absence of regulations, to suit the wishes of various sections, and that what we were doing in this district, might quite easily be started in other districts in some form or other.

In the interval between now and the next meeting, clubs are requested to compose some rules for the A.N.G.C.

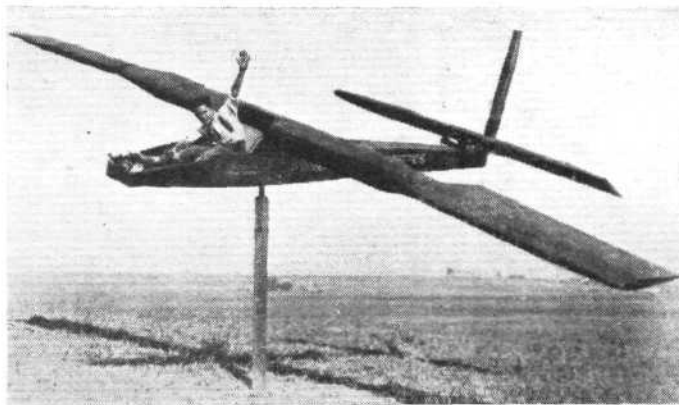
The next meeting is to be at the Hotel Metropole, Leeds, at 3 p.m., on Saturday, October 25, 1930.

**THE BRITISH** Gliding Association has asked us to point out that they are in no sense a club and their name should not therefore have been included in our recent list of Gliding Clubs. They are solely an association of existing clubs and merely act as the guiding organisation for major questions of policy. They do not themselves carry out any gliding activities nor have they any club facilities.

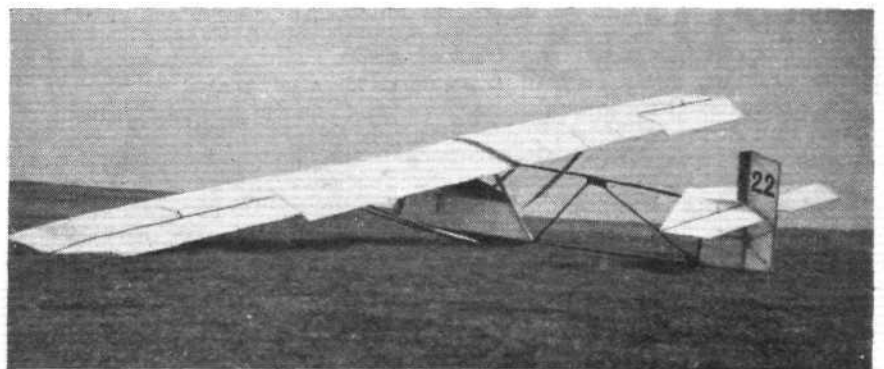
**THE EDINBURGH** Gliding Club has been formed.

Over 150 persons attended the inaugural meeting in the Free Gardeners' Hall, Picardy Place, on September 24.

A provisional committee has been appointed. Sqdn.-Ldr. M'Kelvie, of the 603rd (City of Edinburgh) Bombing Squadron at Turnhouse, will act as chairman, and Mr. D. M. Currie, of 116, Royal Circus, will act as secretary.



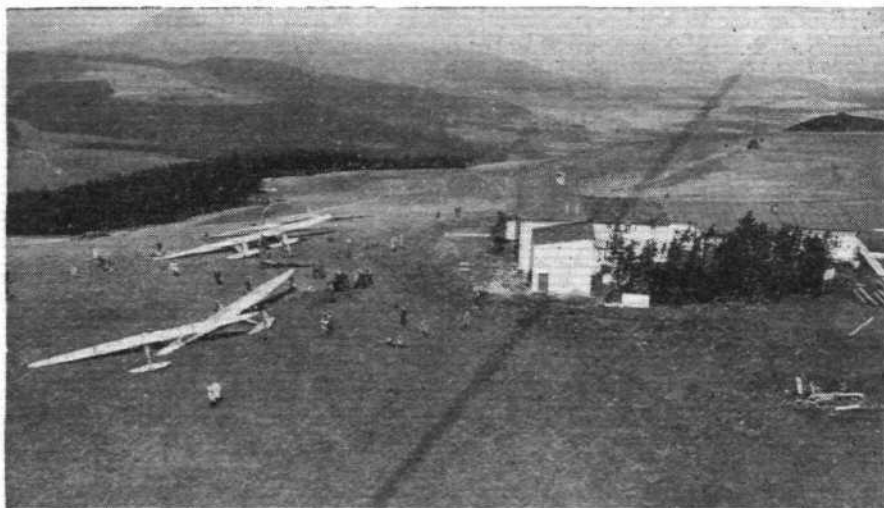
Thomas Chamberlain, aged 12, demonstrating the new ground glider invented by his father, Paul Chamberlain, of Los Angeles, for prospective glider flyers. It is fastened to the top of a ten-foot post with a ball bearing top and has all the controls of a regulation glider or sailplane.



The light wind training type, used at the Wasserkuppe, in which it is possible to make good soaring flights.

**THE BRITISH** Gliding Association.—Arrangements are being made for the visit of Herr Kronfeld, who was the winner of the prize put up by the Association during the recent International Competitions at the Wasserkuppe (for the pilot who flew the longest distance, but at least 60 km.), the prize taking the form of a week's visit to England.

It is suggested that Herr Kronfeld be invited to come over for the period—October 11 to October 18—and that a dinner at the Trocadero to welcome him should be arranged to take place after the Council Meeting on October 14, at 8.30 p.m. The tickets will be 10s. 6d. each, and the remittance should be sent to the Secretary, B.G.A., 44A, Dover Street, London, W. 1.



An aerial view of the Wasserkuppe. On the right is the Berg Hotel and on the left the starting place for soaring flights.

**WOLSELEY GLIDING CLUB.**—The Wolseley Gliding Club was formed on June 23, at a meeting held at Wolseley Motors (1927), Ltd., Ward End, Birmingham. There was an attendance of over 60, nearly all departments being represented.

The formation of the Club was ratified by the Grand Council of the Wolseley Athletic Club; the controlling body for all works sports organisations.

The Club has been fortunate in obtaining the Managing Director, Wm. Cannell, Esq., as President, and the General Manager, Oliver Boden, Esq., O.B.E., as Vice-President.

All employees over the age of 21 years are eligible for membership, the annual subscription being 25s., and there is no entrance fee. Junior and outside memberships are also under consideration. The membership is now 75, and includes all ranks throughout the works. Subscriptions are beginning to come in, but in view of the lateness of the season, a machine is not to be purchased at present. A likely ground for instructional flights is in view, and it is expected by next season everything will be in readiness.

An interesting trip, organised by the Gliding Club, took place on September 6, when a party of 20 Wolseley engineers, mostly members of the Club, embarked at Birmingham in the Imperial Airways liner "City of Edinburgh," and were flown by Capt. O. B. Jones to Croydon aerodrome. Here the party faced a battery of Press cameras, afterwards visiting all departments of the aerodrome under the guidance of a courteous official. Keen interest was taken in the working of the aerodrome and in the various types of engines and machines on view. Leaving for London, lunch was taken at the Regent Palace Hotel, followed by a round of the sights, and finally the last train was caught to Birmingham.

This is believed to be the first works excursion by aeroplane, and it proved so enjoyable that it is certain it will by no means be the last. Those interested in the Club should apply to C. H. Doughty, Hon. Sec., Wolseley Gliding Club, Wolseley Motors (1927), Ltd., Ward End Works, Birmingham.

**THE ISLE OF WIGHT** Gliding Club.—Pending the arrival of the Club's new machine, activities have been restricted to constructional work on Capt. F. W.

Merriam's dual control glider, which is being re-conditioned for C. of A. In order that this work may be facilitated, the machine has been, by courtesy of the directors, moved to the shops of Saunders-Roe, Ltd.

On Wednesday afternoon, September 24, Mr. C. H. Lowe-Wylde, accompanied by the Hon. Sec. of the Kent Gliding Club, delivered the new glider, a B.A.C.II training type. Mr. Wylde, after demonstrating the simplicity of assembling this machine, made an excellent test flight, and then formally handed the machine over.

During the evening Capt. Merriam, who is Instructor and Club Capt., carried out three successful "ground flights" from a level field, following which, Messrs. L. J. H. Richards and J. A. Thompson were successfully launched on their initial instructional "hops."

It is anticipated that the dual control machine will be ready shortly, and with two gliders in commission the Club hopes to settle down to strenuous work during the coming winter. A third machine, which will probably be a two-seater of the advanced type, will also be shortly laid down.

New members are welcomed, and anyone interested is asked to communicate with the hon. secretary, 61, Swanmore Road, Ryde, I.W.

**THE SAIL-PLANE CLUB** of T.M.A.C.—A change in the hon. secretaryship of the Sail-Plane Club (of London and Small-dole, Sussex) has been made.

Owing to great pressure of private work, Mr. John Welding has resigned, but will, no doubt, continue to take an active part in the club's functions.

The committee has elected, as hon. secretary, Mr. E. G. Smettem, and applications for membership, together with other correspondence, should be addressed to him.

During the past week-end, about 10 members gathered at Small-dole, but owing to the wind direction a site on the N.E. slope had to be utilised. Many successful though short flights were made until about 5.30 p.m., when rain made some tea appear attractive, and the glider was "shouldered" back to its "hangar." Several visitors were seen on the surrounding slopes, and there is evidence of increasing interest being taken in the club with each week-end's work.

The Club's winter programme includes the building of sailplanes, and negotiations are in hand for acquiring a large London workshop. In connection with this side a constructional and experimental section is being considered. Active co-operation is expected from some of the most advanced model builders of T.M.A.C. in the construction of scale model sailplanes for experimental purposes, with a view to perfecting the design of the club's own planes.

The subscription is £5 5s. per annum for flying members, and £1 1s. for non-flying members. Enquiries should be made to the Hon. Secretary, E. G. Smettem, 2, Wine Office Court, Fleet Street, London, E.C.4. Central 5773.

**LEEDS** Gliding Club.—At a discussion on September 26 it was decided to form a Leeds Gliding Club. A first meeting is to be held in the near future, when the purchase of a glider will be discussed.

All interested should get in touch with the Hon. Sec. at 32, Fearnville Grove, Roundhay, Leeds. The subscription has been fixed at £2, and the entrance fee at 5s.

**GLIDING HOURS.**—In connection with the agreement allowing the Bradford Gliding Club to use Baildon Moor, the Corporation Parks Committee agreed that gliding should be from 5 p.m. to dusk on a mid-week day, from noon to dusk on Saturday, and up to noon Sundays.

**A GLIDING Club for Croydon?**—Those thinking of forming a gliding club in Croydon, and there is no doubt that a suitable site could be found in the vicinity, should get in touch with Mr. D. Duncan, at 42, Southbridge Road, Croydon.

**WREXHAM** and District Gliding Club.—This club has now been formed, and those interested should apply to the hon. secretary, Mr. Norman R. M. Whitehall, at Waring's Service Garage, Bradley Road, Wrexham.



## TAKING NOTICE OF THE I.T.C.

**H**OMAGE was done at the Savoy, on Thursday last, at a luncheon given by the Committee of the Royal Aero Club and the Council of the Society of British Aircraft Constructors, to Miss Winifred Spooner and Captain Barnard, the two guests of honour, in appreciation of their achievements, as British competitors in the recent International Touring Competition. Although only a small private gathering, it was representative of the interests involved, and its intimacy was, therefore, the more appreciated.

Sir Philip Sassoon presided, and in a few words after the lunch, emphasised that it was only a small informal family gathering in honour of Miss Spooner and Capt. Barnard. Although, he said, Miss Spooner was a little after time in arriving, through a misunderstanding, he thought the *real* reason was that, for once in a way, their guest had trusted to the obsolete methods of travel in the form of railway and motor, instead of via the air, hence her enforced lateness. In welcoming Miss Spooner, he congratulated her for the way in which she had upheld British prestige and aircraft on the Continent. It had had and would result in the most valuable effect abroad. Regarding Capt. Barnard, he was bewildered in following his rapid goings and comings, when he remembered the way he suddenly disappeared and slipped over to Algiers and back, and other remote spots, before one realised he had started. Sir Philip then referred to an imposing Trophy which had been put up by the Imperial Tobacco Co., to encourage British aviation, the first holder of this being Miss Spooner, for the highest marks amongst British pilots in the International Touring Competition. In announcing this, he thought no one more deserved the honour than the recipient. Concluding, Sir Philip repeated his congratulations to Miss Spooner and Capt. Barnard for so magnificently helping the British cause of aviation throughout the world.

Mr. Handley Page, in supporting the toast, said that family parties, in most cases, were synonymous with re-criminations, but the present one was a real family gathering—and in this direction, the name of Spooner was now, in more directions than one, familiar throughout the whole world of aviation, and it was, therefore, the more pleasing to pay homage that day to Miss Spooner. After referring humorously to the taking over of men's work by the gentle sex, so that in the future he could visualise all home and domestic work being relegated to mere man; he added that in congratulating the ladies for their part in furthering aviation, he wished to join the name of Lady Bailey, as hardly any aviation gathering could pass without her name

cropping up in the roll for honours. Regarding Capt. Barnard, the surprising fact was the way he had been able to accomplish his wonderful journeys to India and back, to Algiers, etc. His efforts were amazing to follow. In these days of depression, when the country and Empire were supposed to be going rapidly to the dogs, it was splendid to see the wonderful flights and work done in the world of aviation. On behalf of the Industry, he, in conclusion, congratulated most heartily the two guests of the day.

Mr. Earle, of the Imperial Tobacco Co., then formally presented the Trophy to Miss Spooner, together with a replica as her personal belonging, and in a happy speech, said the Company's desire in giving the Trophy was to encourage British competitors, particularly in helping forward the advancement of the light aeroplane. Incidentally, Miss Spooner's replica of the Trophy served as a "loving cup" during a subsequent gathering of a few of the guests, and was passed round with sincere warmth and enthusiasm.

Miss Spooner responding, shortly thanked all for the very nice things that had been said about her, and she was grateful for all the help that she had received from every quarter. She thanked the Imperial Tobacco Co. for their splendid Trophy, and her only regret was that she had to leave it to the Royal Aero Club to house and keep clean, instead of having it to gaze upon in her own home.

Capt. Barnard thanked one and all very greatly for honouring him, and said that everyone was agreed that Miss Spooner was the greatest woman pilot in the world.

Sir Francis McClean, in proposing the toast of "The Chairman," thanked Sir Philip Sassoon for presiding, and said how great the pleasure was for the two entertaining bodies to have their guests of honour with them.

Amongst those who helped to make up the "family" were:—

Air Vice-Marshal Sir W. Sefton Brancker, K.C.B., A.F.C.; Reginald Earle; the Right Hon. Sir Philip A. G. D. Sassoon, Bart., P.C., G.B.E., C.M.G., M.P.; F. Handley Page, C.B.E.; The Hon. Lady Bailey, D.B.E.; Lieut.-Col. Sir Francis K. McClean, A.F.C.; A. H. Downes-Shaw; Lieut.-Col. L. A. Strange, D.S.O., M.C., D.F.C.; Capt. C. B. Wilson, M.C.; Lieut.-Col. F. C. Sheldermine; H. T. Vane, C.B.E.; John Lord; E. C. Bowyer; B. Stevenson; Lieut.-Col. N. G. Thwaites, C.B.E., M.V.O., M.C.; Major H. A. Petre, D.S.O., M.C.; C. C. Walker; Lieut.-Col. M. O. Darby, O.B.E.; Capt. J. Laurence Pritchard; Sir Robert McLean; H. E. Perrin; H. Burroughes; S. A. Thorn; Representative of the Press Association; H. R. Gillman.



The handsome Trophy presented to Miss Winifred Spooner by the Imperial Tobacco Co,

### Why not a "City of Manchester" Squadron?

THE *Manchester Evening Chronicle*, through its air correspondent, has raised a query as to why Manchester has not yet raised a squadron for the Auxiliary Air Force. It is pointed out that the city is the home of the most famous aircraft factory in the world, the headquarters of one of the strongest and oldest flying clubs in the country, the first city with enough enterprise to acquire a municipal airport, and one of the vital points of the only provincial air line in the country. We agree that the absence of a City of Manchester Bomber Squadron from the Air Force

List is a strange anomaly which ought to be put right as soon as possible.

If, however, the enterprising citizens of Manchester take the initiative in the matter, we do not believe that they will find the Air Ministry wanting in sympathy. The Chancellor of the Exchequer may not be equally friendly, but in spite of Mr. Snowden (who does not hold a life tenure of the post), the air defences of the country are bound to grow, and the most economical way of adding to them is by means of the A.A.F. The claims of Manchester cannot be long disregarded.



## THE CAUDRON C.232

### A French Light 'Plane to be Marketed in Great Britain

FOR a period of several years the light 'plane movement in France lagged behind that of Great Britain. It was not that no light 'planes existed—Caudron and Farman, and various other constructors, had produced machines—but the French nation did not respond. Subsidies to light 'plane clubs gave Great Britain a lead, and it was not until the French Government decided to offer subsidies, in the form of 40 per cent. of the purchase price and a bonus on every hour's flying, that the movement began to forge ahead on the other side of the Channel. A number of French light 'planes are now coming into existence, and the older firms, already in the market with machines, are doing good business as a result.

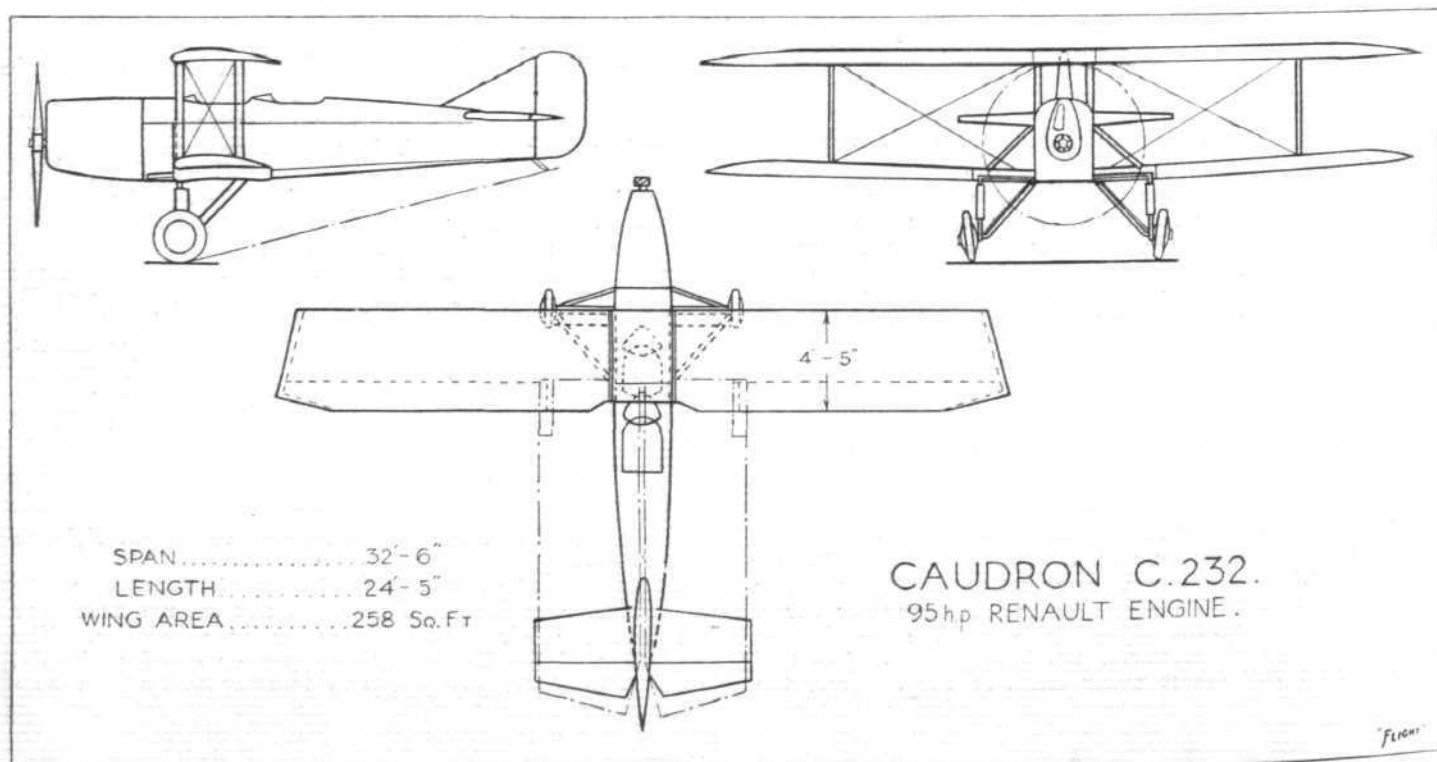
Among the old-established French firms which have produced low-power machines for several years is that of Caudron Frères. One of their types, the C.232, is a biplane with 95 h.p. Renault engine, and this machine is now to be introduced into Great Britain by the newly-established firm of B.N. Aircraft, Ltd., whose headquarters are at Heston Air Park. The moving spirits in the new firm are Captain Archibald Barr and Mr. F. L. Neher, and the firm holds the British agency for a number of French aviation products, among which is the Caudron C.232 shown in the accompanying illustrations.

The C.232 is a biplane of orthodox design and construction, and follows British practice in that it has folding wings. The machine differs slightly from the majority of British machines in that the wings are placed rather farther aft on the fuselage. By doing this the distance from the c.g. of the engine to the c.p. of the wings is increased, and proper trim is obtained by moving the cockpits farther aft. This, in turn, results in both occupants being able, in emergency, to use their parachutes.

Constructionally, the C.232 is mainly a wooden structure, with just a few steel fittings on the wings and a steel tube undercarriage (divided). The fuselage is a plywood-covered box, while the engine mounting is a welded steel tube structure. A petrol tank of 85 litres (18½ gallons) capacity is mounted in the top centre-section.

The main dimensions are shown on the G.A. drawings. The machine has a gross weight of 780 kg. (1,715 lb.), which includes weight of two people, 50 kg. (110 lb.) of luggage, and petrol and oil for about 4 hours. The top speed is 150 km./h. (93 m.p.h.), and the cruising speed 130 km./h. (81 m.p.h.). The practical ceiling, reached in 1 hour, is 4,300 m. (13,100 ft.), and the range in still air is 500 km. (310 miles).

For full particulars of this machine application should be made to B. N. Aircraft, Ltd., Heston Air Park.





# THE ROYAL AIR FORCE

London Gazette, September 23, 1930.

## General Duties Branch

Lieut. J. N. Jaques, R.A.R.O., is granted a short-service commission as Flying Officer with effect from September 9, and with seniority of October 31. The following are granted temporary commissions as Flying Officers on attachment for duty with the R.A.F.; Sept. 7:—

Lieut. R.N.: A. M. McDowell.  
Sub-Lieuts., R.N.: H. P. Bramwell, D. R. F. Campbell, M. K. Cavenagh-Mainwaring, D. C. V. Pelly, H. C. N. Rolfe, D. M. Russell, G. N. Torry.  
Lieut. R.M.: J. L. Moulton.

The follg. Pilot Officers on probation are confirmed in rank:—H. D. Primrose; Aug. 12. R. B. Abraham, M. J. Adam, J. C. Atkins, A. C. Bailey, J. L. C. Banks, D. Barclay, R. J. Cohen, N. Kirkham, A. N. Luxmoore, J. E. C. McClure, R. M. Noblston, A. W. B. Page, M. E. Pickford, E. Poole, W. B. J. Sharp, G. E. B. Stoney, G. R. Stroud, L. Watson, R. L. West; Aug. 15. H. E. Mayes; Aug. 27. H. G. Adams, S. H. Bell, D. P. A. Boitel-Gill, L. E. Chiswell, G. B. S. Coleman, C. R. Davies, J. L. M. Davys, S. W. H. Egan, J. S. Hamilton, C. J. Hansford, L. M. Hooper, N. C. Hyde, B. N. Matson, L. R. Mouatt, E. E. Noddings, I. N. Roome, K. N. Sayers, S. D. Slocum, H. J. Ward, C. A. Washer, H. J. Wilson; Sept. 13. J. A. Nicholson; Sept. 23.

The follg. Pilot Officers are promoted to the rank of Flying Officers:—E. G. Sharp; June 28. J. H. Manning-Fox; July 8. L. V. G. Barrow; Aug. 7. A. F. C. Booth, W. M. Rankin, A. C. Watson; Aug. 22.

Air Vice-Marshal E. R. Ludlow-Hewitt, C.B., C.M.G., D.S.O., M.C., is placed on the half-pay list, Scale A; Sept. 22. Group-Capt. R. H. Verney, O.B.E., is placed on the half-pay list, Scale A; Sept. 18 to Oct. 12 inclusive.

The follg. Flying Officers are transferred to the Reserve:—Class A.: G. J. Powell; Sept. 16. D. G. K. Walker; Sept. 21.  
Class B.: J. H. Leach; Sept. 21.

Flight-Lieut. G. N. Carroll relinquishes his short service commn. on account of ill-health; Sept. 15.

Lieut. A. R. Baines, R.N., Flying Officer, R.A.F., relinquishes his temporary commn. on return to Naval Duty; June 27.

Capt. J. M. Fuller, R.M., Flying Officer, R.A.F., relinquishes his temporary commn. on return to duty with the Royal Marines; Oct. 12, 1929. (Substituted for the notification in the Gazette of Oct. 15, 1929.)

Flying Officer J. W. Thompson (Lieut., R.A.) relinquishes his temporary commn. on return to Army duty; Sept. 18.

Lieut. S. G. Long, R.N., Flying Officer, R.A.F., relinquishes his temporary commn. on resigning his commn. in the Royal Navy; Sept. 17.

Lieut. D. W. Mackendrick, R.N., Flying Officer, R.A.F., ceases to be attached to the R.A.F. on return to Naval duty; Sept. 4.

The short service commn. of Pilot Officer on probation R. Wardrop is terminated on cessation of duty; Sept. 24.

Flying Officer H. T. J. Jagger is cashiered by sentence of General Court Martial; Sept. 17.

## Medical Branch

Wing Commander H. M. S. Turner, M.B.E., M.D., M.R.C.S., L.R.C.P., D.T.M. and H., is placed on the retired list; Sept. 22.

## Memorandum

216192 Cadet H. Harris is granted an honorary commn. as a Second Lieut. with effect from the date of demobilisation.

## RESERVE OF AIR FORCE OFFICERS

### General Duties Branch

D. B. Smith is granted a commn. in Class A.A. (ii) as a Pilot Officer on probation; Sept. 1.

The follg. Pilot Officers on probation are confirmed in rank:—F. W. Moncrieff; July 12. J. H. Goodden; Aug. 29.

The follg. Pilot Officers of the Special Reserve are promoted to the rank of Flying Officer:—J. B. R. Brooke; April 6. Hon. F. A. I. Eveleigh de Moleyns; April 24.

Flying Officer C. S. Kent is transferred from Class A to Class C; Feb. 22.

## AUXILIARY AIR FORCE

### General Duties Branch.

No. 605 (COUNTY OF WARWICK) (BOMBER) SQUADRON.—Pilot Officer George John Paddock resigns his commission (Aug. 27).

## PRINCESS MARY'S ROYAL AIR FORCE NURSING SERVICE

Sister Miss E. M. Featherby resigns her appointment (Sept. 10).

## ROYAL AIR FORCE INTELLIGENCE

**Appointments.**—The following appointments in the Royal Air Force are notified:—

### General Duties Branch

**Group Captains:** R. H. Verney, O.B.E., to Half-pay List; 18.9.30. C. E. H. Rathborne, D.S.O., to H.Q., Inland Area for duty as Chief Staff Officer; 22.9.30. G. I. Carmichael, D.S.O., A.F.C., to Station H.Q., Upper Heyford, to command; 22.9.30.

**Wing Commanders:** J. W. Cordingley, O.B.E., to R.A.F. Depot, Uxbridge, non-effective, sick; 2.9.30. F. L. Robinson, D.S.O., M.C., D.F.C., to Station H.Q., Kenley, to command; 22.9.30. P. A. O. Leask, to Home Aircraft Depot, Henlow, for engineer duties; 16.8.30. W. R. Read, M.C., D.F.C., A.F.C., to H.Q., Wessex Bombing Area, Andover, for duty in connection with the formation of Boscombe Down Station; 18.8.30.

**Squadron Leaders:** H. S. Powell, M.C., to R.A.F. Depot, Uxbridge; 22.9.30. S. E. Toomer, D.F.C., No. 2 Sqdn., Manston; 23.9.30. M. F. Browne, to No. 1 School of Tech. Training (Apprentices), Halton; 23.9.30.

**Flight Lieutenants:** B. A. S. Lewin, to R.A.F. Depot, Uxbridge; 3.9.30. C. C. Edwards, to Station H.Q., Kenley; 1.9.30. R. P. P. Pope, D.F.C., to Central Flying School, Wittering; 23.9.30. C. K. Chandler, M.B.E., to Air Ministry (A.M.S.R.); 13.9.30. D. M. Fleming, to Experimental Section, Royal Aircraft Estab., S. Farnborough; 15.9.30. R. H. W. Empson, to Station H.Q., Hornchurch; 22.9.30.

**Flying Officers:** J. D. Richardson, to Station Flight, Andover; 13.9.30. J. B. Mackenzie, to R.A.F. Base, Gosport; 16.9.30. B. F. O. Smith, to Elec. and Wireless School, Cranwell; 22.9.30. N. W. A. Cullum, to Central Flying School, Wittering; 1.9.30. J. O. H. Lobley, to No. 39 Sqdn., India; 23.9.30. A. D. Gillmore, to R.A.F. Base, Calshot; 22.9.30. F. G. Fairhead, to Experimental Section, Royal Aircraft Estab., S. Farnborough; 15.9.30.

**Pilot Officers:** J. R. S. Agar, H. L. Andrews, E. D. A. Biggs, G. R. Brice, T. H. Burleigh, F. Crump, P. F. Foss, A. H. Garland, M. V. Gibbon, T. P. Gleave, H. L. M. Glover, P. H. W. Hawkins, P. H. Heygate, P. W. Johnson, R. O. F. King, J. N. McAuley, R. A. McDonald, G. E. B. Nixon, P. J. Polglase, G. F. A. Skelton, C. G. Skinner, H. E. Slowey, A. Taylor, J. A. Tester, and

R. Williams, all posted to R.A.F. Depot, Uxbridge, on appointment to short service commns. with effect from 12.9.30. E. E. Ellison, to No. 20 Sqdn., India; 23.9.30. R. L. Phillips, to No. 28 Sqdn., India; 23.9.30.

### Stores Branch

Wing Commander W. F. Bryant, to No. 4 Stores Depot, Ruislip; 22.9.30.

Squadron-Leader: P. M. Brambleby, to H.Q., Air Defence of Great Britain, Uxbridge; 15.9.30.

Flight-Lieutenant: L. H. Vernon, to R.A.F. Training Base, Leuchars; 15.9.30.

**Flying Officers:** H. J. Young, M.B.E., to H.Q., Wessex Bombing Area, Andover; 8.9.30. W. T. Lewis, to No. 604 Sqdn., Hendon; 8.9.30. A. H. E. Frost, to R.A.F. Depot, Uxbridge; 1.9.30. C. J. Cousins, to No. 2 Armoured Car Company, Palestine; 13.9.30.

### Medical Branch

Wing Commander: R. H. Knowles, to H.Q., Fighting Area, Uxbridge, for duty as Principal Medical Officer; 30.9.30.

Flight-Lieutenants: J. E. Foran, to No. 1 Flying Training Schl., Netheravon; 18.9.30. B. W. Cross, to R.A.F. Training Base, Leuchars; 29.9.30. P. H. Musgrave (Quartermaster Medical), to R.A.F. Officers' Hospital, Uxbridge; 9.9.30.

Flight Lieutenants: J. B. Murphy, to Station H.Q., Donibristle; 29.8.30. F. P. Schofield, to R.A.F. Depot, Uxbridge; 1.10.30. J. D. I. Rear, to R.A.F. Pathological Lab., Halton; 3.10.30.

**Flying Officer:** J. Holt, to Princess Mary's R.A.F. Hospital, Halton, on appointment to a Permanent Commn. as Medical Quartermaster; 8.9.30. E. W. B. Griffiths, to Princess Mary's R.A.F. Hospital, Halton; 30.9.30.

### Accountant Branch

Squadron-Leader: I. L. Wincer, to R.A.F. Depot, Aboukir; 13.9.30.

Flight-Lieutenant: W. R. Donkin, to No. 14 Sqdn., Palestine; 13.9.30.

### Chaplain's Branch

Rev. M. H. Edwards, O.B.E., to H.Q., Iraq Command; 13.9.30.

## R.A.F. SPORT

### Golf

Sqdn.-Ldr. C. H. Hayward won the championship of the R.A.F. Officers' Golf Association at Camberley Heath on Friday, September 26. This was his eighth victory in nine years. The results were:—

**Championship.**—Final.—Sqdn.-Ldr. C. H. Hayward beat Pilot Officer Pharazyn by 5 and 3.

**18 Holes Scratch.**—Sqdn.-Ldr. C. H. Hayward and Pilot Officer Wills-Sandford tied at 74.

**18 Holes Handicap.**—First Division.—Group-Capt. Cull, 81–6=75, Flight-Lieut. Silvester, 80–5=75, and Pilot Officer Wills-Sandford, 74+1=75, tied. Second Division.—Air Vice-Marshal Longcroft, 90–11=79; Flight-Lieut. Dick-Cleland, 96–13=83.

**9 Holes Handicap.**—First Division.—Pilot Officer Wills-Sandford, 35½; Group-Capt. Cull, 36. Second Division.—Air Vice-Marshal Longcroft, 36½.

**Foursomes.**—Pilot Officer Wills-Sandford and Flight-Lieut. Clarke, 73½, and Capt. Gough and Flight-Lieut. Macpherson, 73½, tied.

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## The Royal Air Force Memorial Fund

The usual meeting of the Grants Sub-Committee was held on September 4. Mr. W. S. Field was in the chair, and the other members of the committee present were:—Air Commodore B. C. H. Drew, C.M.G., Lieut.-Commander

H. E. Perrin, Squadron-Leader A. H. Wann. The committee considered in all 13 cases, and made grants to the amount of £411 17s. 6d.

At the meeting held on September 19 the Chairman considered in all 12 cases, and made grants to the amount of £119 10s. 5d.

## New Private Secretary for Air Minister

The Air Ministry announces:—The Secretary of State for Air has appointed Mr. L. G. S. Reynolds, O.B.E., to be his principal private secretary in place of Mr. C. L. Bullock, C.B., C.B.E., who will shortly be succeeding Sir Walter Nicholson as Secretary of the Air Ministry.

## Health of the Royal Air Force

The report on the health of the R.A.F. for the year 1929 shows that the incidence of sickness at home and abroad for all cases was 737.2 per mille, as compared with 701.4 in 1928. The cause of the rise was influenza and tonsillitis in Great Britain. Invalids from abroad to the United Kingdom rose slightly as a result of enteric in Iraq. Altogether 238 cases were invalided out of the service, 224 for disease and 14 for injury. There were 33 deaths from disease and 72 from injury. Of the latter, 39 deaths were due to flying accidents on duty. There were 330 accidents to motor cyclists (on and off duty), the 14 deaths all occurring while off duty. There were 28 accidents to occupants of lorries or tenders, resulting in one death. One airman was killed by rifle fire while flying in Iraq, and one airman from the crew of an armoured car in Palestine was wounded by rifle fire. There were 27 cases of injury from airscrews, including such mishaps as a sprained ankle, and two deaths occurred as a result of aircrew injuries.

## MODELS

### SOCIETY OF MODEL AERONAUTICAL ENGINEERS

#### Bournemouth and Model Aeronautics

MODEL enthusiasts residing in, or near, Bournemouth will be pleased to hear that a club is being formed under the title of the "Bournemouth Aeronautical Society," by Mr. H. F. Weller, a member of the "S.M.A.E." Will all those interested please write to him at 18, Madison Avenue, Bournemouth? Mr. Weller is particularly anxious to get the society well under way so that he can affiliate to the S.M.A.E. for next year, and hopes that he will get a quick response from enthusiasts in the district who will help in the organisation of the society.

Further particulars will be published as progress is made.—S. G. Mullins, Hon. Sec. of "S.M.A.E.," 72, Westminster Avenue, Thornton Heath, Surrey.

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#### R.Ae. Society Inaugural Lecture, 66th Session

MR. C. R. FAIREY, M.B.E., F.R.Ae.S., president of the Royal Aeronautical Society, 1930-31, will deliver the inaugural lecture of the sixty-sixth session on Thursday, October 9. The lecture will be delivered in the Royal Society of Arts at 6.30 p.m. on "The Growth of Aviation." In the course of the lecture Mr. Fairey will trace the development of aviation since the War on the technical and commercial side. The chair will be taken by Col. the Master of Sempill, A.F.C., A.F.R.Ae.S.

#### 28 Squadron (R.A.F.) Old Boys' Association

THE Annual Reunion Supper of the 28 Squadron (R.A.F.) Old Boys' Association will be held at the White Horse, 100, High Holborn (near Holborn Tube), on Saturday, October 18—Assemble at 6 p.m. Tickets, 3s. 6d., can be obtained from C. T. Hodges, Hon. Sec., 102, Camden Street, N.W. 1.

#### Guild of Air Pilots and Navigators of the British Empire

As a result of amendments to the Rules of the Guild of Air Pilots and Air Navigators of the British Empire, the Guild will now become completely representative of the profession of commercial pilot. The effect of the amendments is to qualify any British subject holding a "B" licence, a first or second-class navigator's certificate, or a first, second or third-class airship pilot's certificate for election as an associate member of the Guild, providing he is partly or wholly professionally engaged in commercial aviation. Associateship carries no voting powers in the conduct or management of the Guild, but the Associate is entitled to all other benefits of full membership—e.g., attendance at meetings, lectures, and other functions, circularised information, legal representation, and so forth. The annual subscription for an associate is £2 2s. The Guild has by this means broadened the basis of its structure so that every professional pilot may partake in the benefits of the Guild membership. At the same time the qualifications for full membership will be in no way relaxed, and as the entire responsibility for the conduct of the League will devolve on the members, the G.A.P.A.N. will continue to be representative of the best in professional aviation. It is hoped that the many professional pilots and navigators with qualifications for associateship will become enrolled under the new rules, and so assist the Guild in its task of maintaining the status of the profession of pilot and navigator.

#### The Russell Lobe Cotton Parachute

THE Russel Lobe cotton parachute has been produced by the British Russell Parachute Co., Ltd., to meet the needs of those private owner flyers who may find the cost of the silk Service type prohibitive. It is entirely due to the well-known design of all Russell parachutes that a satisfactory cotton type has been evolved.

This design, known as the lobe, prevents heavy shock loads being recorded on the opening of the parachute. An actual test shows a shock load of 1,750 lb. when dropped at 160 m.p.h. with a dead load of 400 lb. In spite of this low figure for such a strenuous test, the Russell cotton chute has a total follow-through strength of shroud line and harness of over 6,000 lb., while the tensile strength of the cotton fabric used is equal to that of the silk. The design of the parachute and the pack is the same as the well-known silk parachute by the same firm and has the same non-swinging descent in all weathers. This is the first really successful life-saving parachute to be made in cotton in this country, and should be in great demand in view of the increasing numbers of owner-pilots. It retails at £49 10s.

## PUBLICATIONS RECEIVED

*Motor Law. Compiled by the A.A. Legal Department. Preliminary Issue.* The Automobile Association, Fannum House, New Coventry Street, London, W.1.

*Techno-Dictionary. English-German-Italian.* By Hubert Hermanns. Dahlemerstr. 62a, Berlin-Lichterfelde-West, Germany. Price 15s.

*Ordeal by Air.* By J. Scott Hughes. London: Longmans, Green and Co., Ltd. Price 7s. 6d. net.

*Some Present Practices in Secondary Aeronautical Education.* By R. H. Spaulding. New York University, Washington Square East, New York.

*Unemployed or Reserve?* Mrs. M. A. Cloudesley Brereton. Knapp, Drewett and Sons, 30, Victoria Street, Westminster, S.W.1. Price 1s.

*Amendment List No. 12 to Air Publication 1208. Airworthiness Handbook for Civil Aircraft.* H.M. Stationery Office, Kingsway, London, W.C.2. Price 1d.

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## NEW COMPANY REGISTERED

BRANT AIRCRAFT, LTD, Waddon Aircraft Factory, Stafford Road, Wallington, Surrey.—Capital £1,000 in £1 shares. Acquiring the business of aircraft designers and constructors now carried on by A. A. Sidney, F. W. J. Grant and L. E. Baynes, of aviators, carriers and transporters of passengers and cargo by aeroplanes, airships, balloons, etc. Directors:—A. A. Sidney (chairman), 36, Chipstead Avenue, Thornton Heath, Surrey (director, Sidarben Engines, Ltd.); F. W. J. Grant, 10, Purley Park Road, Purley, Surrey (partner in Surrey Flying Service, and director of Aviation Tours, Ltd.); L. E. Baynes, 552, Purley Way, Waddon, Surrey.

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#### Imperial Airways

THE full accounts of Imperial Airways, Limited, for the year to March 31 last show that the company earned a larger income, but as this was derived from an enlarged scale of operations the charges against it in respect of insurance and depreciation, particularly the latter, have resulted in a lower net profit. The Trading Account, including subsidies, showed a revenue of £169,376 against £141,000, and the total income was £179,338 against £150,158, but provision for Obsolescence of Aircraft and Engines required £85,387, the company being under an obligation to write down its fleet at heavy rates in accordance with the terms of its Government contract. Insurance accounted for £17,260 against £11,901, and the net profit was £60,139, subject to income tax, against £81,714 as already stated. Out of the net profit a sum of £25,000 is set aside as provision for taxation and £2,500, or one-tenth of the amount, is written off the sum standing in the balance-sheet as "Consideration for waiver of any claims by the Air Ministry for repayment of subsidy." This sum was represented by the issue of £25,000 in deferred shares to the Air Ministry, and after paying a dividend of 5 per cent. on the ordinary capital, a balance of £20,957 will remain to be carried forward.

The report states that on the regular European services traffic continued to improve, and on the England to India service traffic was satisfactory for the first year and is steadily growing. The financial results, however, were adversely affected by the change of route necessitated by reasons beyond the control of the company. It is admitted, too, that while traffic has increased, it has not increased as fast as was anticipated and has not, therefore, kept pace with the capacity of the fleet, the increase in which has necessitated the heavier overhead charges. The absence of expansion of traffic to the extent expected is attributed to adverse trade conditions. The August traffic return showed receipts since April 1, 1930, of £291,825, as compared with £287,102 for the period of the previous year.

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## AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

### APPLIED FOR IN 1929

Published October 2, 1930

- 16,631. M. A. and J. G. NAVARRO. Aircraft. (334,573.)  
17,590. BRISTOL AEROPLANE CO., LTD. and L. G. FRISE. Harness for aeronauts. (334,598.)  
26,294. SIR W. G. ARMSTRONG WHITWORTH AIRCRAFT, LTD. and J. LLOYD. Control-mechanism for aircraft. (334,702.)

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